

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 08.11.93  
Test oil : ISO 4113

Combination No. : 0 402 646 954X

Injection pump  
Pump designation : PE6P120A320LS7834  
: -10  
EP type number : 0 412 626 853

Governor  
Governor design. : RQ300/1050PA993-5  
Governor no. : 0 421 801 610

Cust. part No. : 0210740502

Customer spec. information  
Customer : MB-NFZ  
Motor : OM401 LA  
Power kW : 213.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 110  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

A01

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-  
: 1

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 14.10  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 217.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.20  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : 109  
Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm : ± 0.80

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 217.5

A02

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### CONTROL LEVER

control lever  
position degree : 97.0  
tolerance degree : ± 4.0

#### RATED SPEED

rack travel mm : 13.10  
Rated speed rpm : 1098  
Tolerance 1/min : ± 8

rack travel mm : 4.00  
Rated speed rpm : 1190  
Tolerance 1/min : ± 15

rack travel mm : 0.75  
Tolerance mm : ± 0.75  
Rated speed rpm : 1300

#### LOW IDLE

control lever  
position degree : 72.0  
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 7.50

#### Testing:

Rated speed rpm : 300  
rack travel mm : 6.20  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 400  
Tolerance 1/min : ± 20

#### TORQUE CONTROL

Rated speed rpm : 1050



rack travel mm : 14.10  
 Tolerance mm :  $\pm$  0.05  
  
 Rated speed rpm : 800  
 rack travel mm : 14.10  
 Tolerance mm :  $\pm$  0.05  
  
 Rated speed rpm : 600  
 rack travel mm : 14.10  
 Tolerance mm :  $\pm$  0.05

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#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 400  
 Pressure hPa : 1500  
 rack travel mm : 14.10  
 Tolerance mm :  $\pm$  0.05  
  
 Rated speed rpm : 400  
 Pressure hPa : -  
 rack travel mm : 9.45  
 Tolerance mm :  $\pm$  0.15

##### MEASUREMENT

Pressure hPa : -  
 Rated speed rpm : 500  
 rack travel mm : 9.45  
 Tolerance mm :  $\pm$  0.15  
  
 Rated speed rpm : 400  
  
 Pressure hPa : 350  
 Tolerance mm :  $\pm$  0.05  
  
 Pressure hPa : 550  
 rack travel mm : 13.30  
 Tolerance mm :  $\pm$  0.10

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##### Start interlock

Rated speed rpm : > 100  
 Rated speed rpm : < 220  
  
 Check  
 speed 1/min : > 80  
 Check  
 speed 1/min : < 240

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##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : 1500  
 Rated speed rpm : 800  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 218.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  5.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

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rack travel mm : 14.10  
 Tolerance mm :  $\pm$  0.05

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Aneroid pressure  
 hPa : 350  
 Rated speed rpm : 400  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 150.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.5

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Aneroid pressure  
 hPa : -  
 Rated speed rpm : 500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 130.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

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##### STARTING FUEL DELIVERY

Rated speed rpm : 100  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 220.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  14.0

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LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 6.20

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed  
Tolerance

cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.11.93  
Test oil : ISO 4113

Combination No. : 0 402 646 957X

Injection pump  
Pump designation : PE6P120A320LS7836  
: -10  
EP type number : 0 412 626 854

Governor  
Governor design. : RQV300...1050PA797  
: -32  
Governor no. : 0 421 813 957

Cust. part No. : 0200741002

## Customer spec. information

Customer : MB-NFZ  
Motor : OM401 LA  
Power KW : 180.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 110  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5

A05

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-  
: 1

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.70  
Tolerance mm : ± 0.05

Del. quantity	
cm <sup>3</sup> /1000 strokes	: 183.5
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 4.0
Speed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0

Rated speed rpm	: 300
Rack travel in mm	: 5.60
Tolerance mm	: ± 0.10
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 19.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 3.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 6.0
Speed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 6.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever	
position degree	: - 1
Rated speed rpm	: 1100
Rack travel in mm	: 15.50
Tolerance mm	: ± 1.30

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
Aneroid pressure	
hPa	: 1400
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 183.5

A06

Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 4.0
Speed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0

#### CONTROL LEVER

control lever	
position degree	: 120.0
tolerance degree	: ± 4.0

#### RATED SPEED

rack travel mm	: 11.70
Rated speed rpm	: 1095
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1180
Tolerance 1/min	: ± 15

rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1300

#### LOW IDLE

control lever	
position degree	: 82.0
tolerance degree	: ± 4.0

#### Setting point w/out bumper spring

Rated speed rpm	: 200
CRT mm min.	: > 7.40

#### Testing:

Rated speed rpm	: 300
rack travel mm	: 5.60
Tolerance mm	: ± 0.10

Rated speed rpm	: 350
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#### TORQUE CONTROL

Rated speed rpm	: 1050
rack travel mm	: 12.70
Tolerance mm	: ± 0.05

Rated speed rpm : 800  
rack travel mm : 12.70  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 12.70  
Tolerance mm :  $\pm$  0.05

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#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 400  
Pressure hPa : 1400  
rack travel mm : 12.70  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 400  
Pressure hPa : -  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.15

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 400

Pressure hPa : 200  
Tolerance mm :  $\pm$  0.05

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##### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

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#### FUEL DELIVERY CHARACTERISTICS

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Aneroid pressure  
hPa : 1400  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 188.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

A07

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

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rack travel mm : 12.70  
Tolerance mm :  $\pm$  0.05

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Aneroid pressure  
hPa : 200  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 119.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

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Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 133.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

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#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

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#### LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 5.60  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.11.93  
Test oil : ISO 4113

Combination No. : 0 402 646 958X

Injection pump  
Pump designation : PE6P120A320LS7836  
: -10  
EP type number : 0 412 626 854

Governor  
Governor design. : RQV300...950PA797  
: -33  
Governor no. : 0 421 813 958

Cust. part No. : 0200742102

## Customer-spec. information

Customer : MB-NFZ  
Motor : OM401 LA  
Power KW : 180.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 110  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5

A09

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-  
: 1

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

## BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 12.70  
Tolerance mm : ± 0.05

Del. quantity cm <sup>3</sup> /1000 strokes	: 188.5
Tolerance cm <sup>3</sup> /1000 strokes	: + 1.0
Check tolerance cm <sup>3</sup> /1000S.	: + 4.0
Speed	
Tolerance cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance cm <sup>3</sup> /1000S.	: 9.0

Rated speed rpm	: 300
Rack travel in mm	: 5.60
Tolerance mm	: + 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	: 19.0
Tolerance cm <sup>3</sup> /1000 strokes	: + 3.0
Check tolerance cm <sup>3</sup> /1000S.	: + 6.0
Speed	
Tolerance cm <sup>3</sup> /1000 strokes	: 6.0
Check tolerance cm <sup>3</sup> /1000S.	: 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever position degree	: - 1
Rated speed rpm	: 1020
Rack travel in mm	: 16.50
Tolerance mm	: + 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 950
Aneroid pressure hPa	: 1400
Del. quantity cm <sup>3</sup> /1000 strokes	: 188.5

A10

Tolerance cm <sup>3</sup> /1000 strokes	: + 1.0
Check tolerance cm <sup>3</sup> /1000S.	: + 4.0
Speed	
Tolerance cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance cm <sup>3</sup> /1000S.	: 9.0

##### CONTROL LEVER

control lever position degree	: 118.0
tolerance degree	: + 4.0

##### RATED SPEED

rack travel mm	: 11.70
Rated speed rpm	: 995
Tolerance 1/min	: + 5

rack travel mm	: 4.00
Rated speed rpm	: 1080
Tolerance 1/min	: + 15

rack travel mm	: 0.50
Tolerance mm	: + 0.50
Rated speed rpm	: 1200

##### LOW IDLE

control lever position degree	: 82.0
tolerance degree	: + 4.0

##### Setting point w/out bumper spring

Rated speed rpm	: 200
CRT mm min.	: > 7.40

##### Testing:

Rated speed rpm	: 300
rack travel mm	: 5.60
Tolerance mm	: + 0.10

Rated speed rpm	: 375
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##### TORQUE CONTROL

Rated speed rpm	: 950
rack travel mm	: 12.70
Tolerance mm	: + 0.05



Rated speed rpm : 800  
rack travel mm : 12.70  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 12.70  
Tolerance mm :  $\pm$  0.05

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#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 400  
Pressure hPa : 1400  
rack travel mm : 12.70  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 400  
Pressure hPa : -  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.15

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 400

Pressure hPa : 200  
Tolerance mm :  $\pm$  0.05

---

##### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  220

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  240

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#### FUEL DELIVERY CHARACTERISTICS

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Aneroid pressure  
hPa : 1400  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 188.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

rack travel mm : 12.70  
Tolerance mm :  $\pm$  0.05

---

Aneroid pressure  
hPa : 200  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 119.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

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Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 133.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

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#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

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#### LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 5.60  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

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End of test specification sheet

**Note remarks**

Edition : 03.03.94  
Test oil : ISO 4113  
  
Combination No. : 0 402 646 984  
  
Injection pump  
Pump designation : PE6P120A320RS7248  
: -10  
EP type number : 0 412 626 900

Cust. part No. : 1248030

Customer : DAF  
Motor : RS 222 L  
Power KW : 222.0

Inlet line : 3.2

Overflow valve : 1 417 413 025

Test nozzle holder assembly : 1 688 901 105

Test Lines : 1 680 750 089

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

Test pressure bar : 26.0  
Tolerance bar :  $\pm$  1.0

Prestroke mm	:	5.25
Tolerance mm	:	± 0.05
Check		
tolerance mm	:	± 0.10

Rack travel in mm : 12.50  
Tolerance mm :  $\pm 0.50$

Firing order : 1- 5- 3- 6- 2-  
: 4

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Phasing      : 0-60-120-180-240
              : -300
Tolerance    : +- 0.30
Check
tolerance *NW : +- 0.75

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Rated speed rpm : 1000

Rack travel in mm : 12.25  
Tolerance mm :  $\pm 0.05$

Rack travel in mm :	4.70
Tolerance mm :	+ 0.10
Del. quantity	
cm3/1000 strokes :	16.0

Tolerance  
 cm3/1000 strokes : + 3.0  
 Check tolerance  
 cm3/1000S. : + 6.0  
 Spread  
 Tolerance  
 cm3/1000 strokes : 8.0  
 Check tolerance  
 cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1211  
 guide sleeve  
 travel mm : 6.48  
 Tolerance mm : + 0.10

Rated speed rpm : 275  
 guide sleeve  
 travel mm : 1.78  
 Tolerance mm : + 0.10

Rated speed rpm : 1150  
 guide sleeve  
 travel mm : 6.00  
 Tolerance mm : + 0.10

Rated speed rpm : 350  
 guide sleeve  
 travel mm : 4.05  
 Tolerance mm : + 0.10

Rated speed rpm : 450  
 guide sleeve  
 travel mm : 6.00  
 Tolerance mm : + 0.10

Rated speed rpm : 1370  
 guide sleeve  
 travel mm : 11.50  
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever  
 position degree : - 1  
 Rated speed rpm : 550

Rack travel in mm : 15.80  
 Tolerance mm : + 0.60

CONTROL LEVER

control lever  
 position degree : 104.0  
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 11.20  
 Rated speed rpm : 1208  
 Tolerance 1/min : + 8

rack travel mm : 4.00  
 Rated speed rpm : 1290  
 Tolerance 1/min : + 15

rack travel mm : 0.70  
 Tolerance mm : + 0.70  
 Rated speed rpm : 1450

LOW IDLE

control lever  
 position degree : 74.0  
 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 175  
 CRT mm min. : > 7.00

Testing:

Rated speed rpm : 275  
 rack travel mm : 4.70  
 Tolerance mm : + 0.10

rack travel mm : 2.00  
 Rated speed rpm : 340  
 Tolerance 1/min : + 20

TORQUE CONTROL

Rated speed rpm : 1000  
 rack travel mm : 12.25  
 Tolerance mm : + 0.05

Rated speed rpm : 1150  
 rack travel mm : 12.25  
 Tolerance mm : + 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 600  
Pressure hPa : 1000  
rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
Pressure hPa : -  
rack travel mm : 9.40  
Tolerance mm :  $\pm$  0.10

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 600  
rack travel mm : 9.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600

Pressure hPa : 240  
rack travel mm : 10.40  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 420  
rack travel mm : 11.65  
Tolerance mm :  $\pm$  0.05

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 122.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

LOW IDLE

Rack travel in mm : 4.70  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.07.94  
Test oil : ISO 4113  
Combination No. : 0 402 646 995  
Injection pump  
Pump designation : PE6P120A720RS7188  
: -10  
EP type number : 0 412 626 924  
Governor  
Governor design. : RQV200...950PA725  
: -10  
Governor no. : 0 421 814 002  
Cust. part No. : 1338075

Customer-spec. information  
Customer : SCANIA  
Motor : DSC 11 33

## TEST BENCH REQUIREMENTS

Inlet Line : 4.2  
Vibration  
damper  
(RoBo diaphragm) : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 025  
Inlet press. bar : 2.5  
Tolerance bar : ± 0.1  
Test nozzle holder  
assembly : 1 688 901 104  
Opening pressure  
bar : 251.5  
Tolerance bar : ± 1.5

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Test lines : 1 680 750 008  
Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 4.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75  
Start of delivery mark  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75  
Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 250

Rack travel in mm : 4.70  
 Tolerance mm :  $\pm$  0.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 16.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  6.0  
 Spread  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 4.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1045  
 guide sleeve  
 travel mm : 8.50  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 225  
 guide sleeve  
 travel mm : 1.40  
 Tolerance mm :  $\pm$  0.20

Rated speed rpm : 650  
 guide sleeve  
 travel mm : 4.80  
 Tolerance mm :  $\pm$  0.30

Rated speed rpm : 350  
 guide sleeve  
 travel mm : 2.70  
 Tolerance mm :  $\pm$  0.30

Rated speed rpm : 1125  
 guide sleeve  
 travel mm : 9.50  
 Tolerance mm :  $\pm$  0.20

GUIDE SLEEVE POSITION

control lever  
 position degree : - 1  
 Rated speed rpm : 1140

Rack travel in mm : 9.50  
 Tolerance mm :  $\pm$  2.50

CONTROL LEVER

control lever  
 position degree : 60.0  
 tolerance degree :  $\pm$  4.0

control lever  
 position degree : 114.0  
 tolerance degree :  $\pm$  4.0

RATED SPEED

rack travel mm : 12.40  
 Rated speed rpm : 995  
 Tolerance 1/min :  $\pm$  5  
 Check  
 speed 1/min :  $\pm$  10

rack travel mm : 4.00  
 Rated speed rpm : 1125  
 Tolerance 1/min :  $\pm$  15  
 Check  
 speed 1/min :  $\pm$  20

rack travel mm : 0.50  
 Tolerance mm :  $\pm$  0.50  
 Rated speed rpm : 1250

LOW IDLE

control lever  
 position degree : 64.0  
 tolerance degree :  $\pm$  4.0

control lever  
 position degree : 10.0  
 tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 150

CRT mm min. :  $>$  6.00

Testing:

Rated speed rpm : 250  
 rack travel mm : 4.70  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300  
 Tolerance 1/min :  $\pm$  99

TORQUE CONTROL

Rated speed rpm : 950  
rack travel mm : 13.45  
Tolerance mm :  $\pm$  0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 13.45  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.40  
Tolerance mm :  $\pm$  0.20

MEASUREMENT

Rated speed rpm : 500  
  
Pressure hPa : 270  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 440  
rack travel mm : 12.05  
Tolerance mm :  $\pm$  0.05

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 222.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 153.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.40  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 165.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

LOW IDLE

Rated speed rpm : 250  
  
Rack travel in mm : 4.70  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.04.96  
Test oil : ISO 4113  
Combination No. : 0 402 648 797  
Injection pump  
Pump designation : PE8P120A320LS7873  
EP type number : 0 412 628 880  
Governor  
Governor design. : RQ750PA1231  
Governor no. : 0 421 801 791

Cust. part No. : 04222112KY0165-17

Customer-spec. information  
Customer : KHD  
Motor : BF8M1015/C  
Power KW : 318.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 8- 7- 2- 6  
                  : - 5- 4- 3

Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.30  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 365.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance cm <sup>3</sup> /1000S.	: + 4.0
<hr/>	
Spread	
Tolerance cm <sup>3</sup> /1000 strokes	: 5.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: 9.0
<hr/>	
Rated speed rpm	: 300
Del. quantity cm <sup>3</sup> /1000 strokes	: 20.0
Tolerance cm <sup>3</sup> /1000 strokes	: + 3.0
Check tolerance cm <sup>3</sup> /1000S.	: + 6.0
Spread	
Tolerance cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance cm <sup>3</sup> /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 768
guide sleeve travel mm	: 6.28
Tolerance mm	: + 0.15
<hr/>	
Rated speed rpm	: 610
guide sleeve travel mm	: 0.52
Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 900
guide sleeve travel mm	: 14.60
Tolerance mm	: + 0.15
<hr/>	
Rated speed rpm	: 866
guide sleeve travel mm	: 12.00
Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 930
guide sleeve travel mm	: 13.50
Tolerance mm	: + 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

A20

Rated speed rpm	: 700
Aneroid pressure hPa	: -
Del. quantity cm <sup>3</sup> /1000 strokes	: 365.0
Tolerance cm <sup>3</sup> /1000 strokes	: + 1.0
Check tolerance cm <sup>3</sup> /1000S.	: + 4.0
Spread	
Tolerance cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance cm <sup>3</sup> /1000S.	: 9.0

CONTROL LEVER

control lever position degree	: 109.0
tolerance degree	: + 4.0

RATED SPEED

rack travel mm	: 0.50
Tolerance mm	: + 0.50
Rated speed rpm	: 900

ASSEMBLY GOVERNOR SETTING

Rated speed rpm	: 750
rack travel mm	: 12.30
<hr/>	
Rated speed rpm	: 780
Tolerance 1/min	: + 4
rack travel mm	: 5.50
<hr/>	
rack travel mm	: 0.50
Tolerance mm	: + 0.50
Rated speed rpm	: 900
<hr/>	
Rated speed rpm	: 751
rack travel mm	: 12.30
<hr/>	
Rated speed rpm	: 781
Tolerance 1/min	: + 4
rack travel mm	: 5.50
<hr/>	
rack travel mm	: 0.50
Tolerance mm	: + 0.50
Rated speed rpm	: 900
<hr/>	
Rated speed rpm	: 752
rack travel mm	: 12.30
<hr/>	
Rated speed rpm	: 782

Tolerance 1/min : + 4  
rack travel mm : 5.50

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 900

Rated speed rpm : 753  
rack travel mm : 12.30

Rated speed rpm : 783  
Tolerance 1/min : + 4  
rack travel mm : 5.50

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 900

Rated speed rpm : 754  
rack travel mm : 12.30

Rated speed rpm : 784  
Tolerance 1/min : + 4  
rack travel mm : 5.50

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 900

Rated speed rpm : 755  
rack travel mm : 12.30

Rated speed rpm : 785  
Tolerance 1/min : + 4  
rack travel mm : 5.50

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 900

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 13.30  
Tolerance mm : + 0.05

#### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 560

Check  
speed 1/min : > 80

Check  
speed 1/min : < 580

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm : + 0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 205.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 24.0

#### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.12.93  
Test oil : ISO 4113  
  
Combination No. : 0 402 648 893X  
  
Injection pump  
Pump designation : PE8P120A320LS7835  
: -10  
EP type number : 0 412 628 853  
  
Governor  
Governor design. : RQ300/950PA971-2  
Governor no. : 0 421 801 548

Cust. part No. : 0200740602

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM402 LA  
Power KW : 280.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 110  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

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Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 14.70  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 231.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.20  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1014  
guide sleeve

travel mm : 6.87  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300  
guide sleeve

travel mm : 2.13  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 950  
guide sleeve

travel mm : 6.55  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 750  
guide sleeve

travel mm : 6.14

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 404

guide sleeve  
travel mm : 4.60

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500

guide sleeve  
travel mm : 6.00

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1160

guide sleeve  
travel mm : 11.50

Tolerance mm :  $\pm$  0.50

Rated speed rpm : 853

guide sleeve  
travel mm : 6.41

Tolerance mm :  $\pm$  0.10

#### GUIDE SLEEVE POSITION

control lever  
position degree : 109

Rated speed rpm : 600

Rack travel in mm : 20.00

Tolerance mm :  $\pm$  0.30

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750

Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 231.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### CONTROL LEVER

control lever  
position degree : 98.0

tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : 13.10  
 Rated speed rpm : 998  
 Tolerance 1/min :  $\pm$  8

rack travel mm : 4.00  
 Rated speed rpm : 1085  
 Tolerance 1/min :  $\pm$  15

rack travel mm : 0.70  
 Tolerance mm :  $\pm$  0.70  
 Rated speed rpm : 1200

#### LOW IDLE

control lever  
 position degree : 74.0  
 tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. :  $>$  7.50

#### Testing:

Rated speed rpm : 300  
 rack travel mm : 6.20  
 Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
 Rated speed rpm : 400  
 Tolerance 1/min :  $\pm$  20

#### TORQUE CONTROL

Dimension a mm : 0.50  
 Rated speed rpm : 750  
 rack travel mm : 14.70  
 Tolerance mm :  $\pm$  0.05

Rated speed rpm : 950  
 rack travel mm : 14.10  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 800  
 rack travel mm : 14.70  
 Tolerance mm :  $\pm$  0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

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Rated speed rpm : 400  
 Pressure hPa : 1200  
 rack travel mm : 14.70  
 Tolerance mm :  $\pm$  0.05

Rated speed rpm : 400  
 Pressure hPa : -  
 rack travel mm : 10.45  
 Tolerance mm :  $\pm$  0.15

#### MEASUREMENT

Pressure hPa : -  
 Rated speed rpm : 500  
 rack travel mm : 10.45  
 Tolerance mm :  $\pm$  0.15

Rated speed rpm : 400

Pressure hPa : 250  
 rack travel mm : 11.05  
 Tolerance mm :  $\pm$  0.10

Pressure hPa : 550  
 Tolerance mm :  $\pm$  0.05

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : 1200  
 Rated speed rpm : 950  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 217.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
 Check tolerance  
 cm<sup>3</sup>/1000s. :  $\pm$  5.0  
 Spread  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000s. : 12.0

rack travel mm : 14.70  
 Tolerance mm :  $\pm$  0.10

Aneroid pressure  
 hPa : 550  
 Rated speed rpm : 400  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 190.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.5

Check tolerance  
cm<sup>3</sup>/1000s. : ± 4.5

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 55.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 19.0

---

#### LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 6.20  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.09.93  
Test oil : ISO 4113

Combination No. : 0 402 648 911

Injection pump  
Pump designation : PE8P120A320LS7839  
: -10  
EP type number : 0 412 628 855

Governor  
Governor design. : RQV300...1050PA797  
: -27  
Governor no. : 0 421 813 916

Cust. part No. : 0200749302

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442 LA  
Power KW : 370.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 110  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5

A26

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 8

## CRT ZERO POSITION

Rack travel in mm : 15.20  
Tolerance mm : ± 0.10



---

#### BASIC SETTING

Del. quantity  
cm<sup>3</sup>/1000 strokes : 266.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 300

Rack travel in mm : 6.30  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

---

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1130

Rack travel in mm : 16.50  
Tolerance mm : ± 1.30

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550

Aneroid pressure  
hPa : 900

Del. quantity  
cm<sup>3</sup>/1000 strokes : 266.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

#### CONTROL LEVER

control lever  
position degree : 122.0  
tolerance degree : ± 4.0

---

#### RATED SPEED

rack travel mm : 15.30  
Rated speed rpm : 1095

Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1190  
Tolerance 1/min : ± 15

rack travel mm : 0.75  
Tolerance mm : ± 0.75  
Rated speed rpm : 1250

---

#### LOW IDLE

control lever  
position degree : 80.0  
tolerance degree : ± 4.0

---

#### Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 6.80

---

#### Testing:

Rated speed rpm : 300  
rack travel mm : 6.30  
Tolerance mm : ± 0.10

Rated speed rpm : 375

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 16.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 800  
rack travel mm : 16.50  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 550  
Pressure hPa : 900

##### 2-stage LDA setting

Rated speed rpm : 700  
Pressure hPa : 1100  
rack travel mm : 0.20

##### MEASUREMENT

Rated speed rpm : 550  
Pressure hPa : 550  
rack travel mm : -2.25  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 1300  
rack travel mm : 0.55  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 250  
rack travel mm : -5.00  
Tolerance mm :  $\pm$  0.10

---

##### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  220

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  240

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 2000  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 272.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : 2000  
Rated speed rpm : 800  
rack travel mm : 16.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 285.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : 1300  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 273.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

---

Aneroid pressure  
hPa : 550  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 204.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 133.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 285.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 14.0

---

#### LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 6.30  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.09.93  
Test oil : ISO 4113  
  
Combination No. : 0 402 648 915X  
  
Injection pump  
Pump designation : PE8P120A320LS7835  
: -10  
EP type number : 0 412 628 853  
  
Governor  
Governor design. : RQ300/1050PA993-1  
Governor no. : 0 421 801 582

Cust. part No. : 0200747202

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM402 LA  
Power KW : 280.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 110  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 8

## BASIC SETTING

Del. quantity  
cm<sup>3</sup>/1000 strokes : 231.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm3/1000S. : + 4.0

---

Spread

Tolerance  
cm3/1000 strokes : 6.0

---

Check tolerance  
cm3/1000S. : 9.0

---

Rated speed rpm : 300

Rack travel in mm : 6.20

Tolerance mm : + 0.10

Del. quantity  
cm3/1000 strokes : 19.0

Tolerance  
cm3/1000 strokes : + 3.0

Check tolerance  
cm3/1000S. : + 6.0

Spread

Tolerance  
cm3/1000 strokes : 6.0

Check tolerance  
cm3/1000S. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
position degree : 109  
Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm : + 0.80

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750  
Aneroid pressure  
hPa : 1200

Del. quantity  
cm3/1000 strokes : 231.0

Tolerance  
cm3/1000 strokes : + 1.0

Check tolerance  
cm3/1000S. : + 4.0

Spread

Tolerance  
cm3/1000 strokes : 6.0

Check tolerance  
cm3/1000S. : 9.0

---

CONTROL LEVER

control lever  
position degree : 99.0  
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 13.00

Rated speed rpm : 1098

Tolerance 1/min : + 8

rack travel mm : 4.00

Rated speed rpm : 1185

Tolerance 1/min : + 15

rack travel mm : 0.70

Tolerance mm : + 0.70

Rated speed rpm : 1300

---

LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 7.80

Testing:

Rated speed rpm : 300

rack travel mm : 6.20

Tolerance mm : + 0.10

rack travel mm : 2.00

Rated speed rpm : 400

Tolerance 1/min : + 20

---

TORQUE CONTROL

Dimension a mm : 0.50

Rated speed rpm : 1050

rack travel mm : 14.00

Tolerance mm : + 0.10

Rated speed rpm : 800

rack travel mm : 14.70  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 750  
Pressure hPa : 1200  
rack travel mm : 14.70  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.25  
Tolerance mm :  $\pm$  0.15

##### MEASUREMENT

Rated speed rpm : 750  
  
Pressure hPa : 250  
rack travel mm : 11.25  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 550  
Tolerance mm :  $\pm$  0.05

---

##### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 215.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

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rack travel mm : 14.70  
Tolerance mm :  $\pm$  0.10

---

Aneroid pressure  
hPa : 550  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 190.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 132.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 215.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 300  
  
Rack travel in mm : 6.20  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.09.93  
Test oil : ISO 4113  
  
Combination No. : 0 402 648 918X  
  
Injection pump  
Pump designation : PE8P120A32OLS7838  
: -10  
EP type number : 0 412 628 854  
  
Governor  
Governor design. : RQ300/1050PA993-4  
Governor no. : 0 421 801 602

Cust. part No. : 021074102

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442 LA  
Power KW : 320.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 110  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1

Phasing : 0-45-90-135-180  
: -225-270-315

Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 8

## BASIC SETTING

Del. quantity  
cm<sup>3</sup>/1000 strokes : 238.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0



Check tolerance  
cm<sup>3</sup>/1000s. : + 4.0

---

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

---

Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

---

Rated speed rpm : 300

Rack travel in mm : 6.50

Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000s. : + 6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000s. : 10.0

---

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
position degree : 109  
Rated speed rpm : 1020

Rack travel in mm : 20.00  
Tolerance mm : + 0.80

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 238.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000s. : + 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

---

CONTROL LEVER

control lever  
position degree : 98.0  
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 13.30

Rated speed rpm : 1098

Tolerance 1/min : + 8

rack travel mm : 4.00

Rated speed rpm : 1180

Tolerance 1/min : + 15

rack travel mm : 0.75

Tolerance mm : + 0.75

Rated speed rpm : 1250

---

LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 7.80

Testing:

Rated speed rpm : 300

rack travel mm : 6.50

Tolerance mm : + 0.10

Rated speed rpm : 400

---

TORQUE CONTROL

Rated speed rpm : 1050

rack travel mm : 14.30

Tolerance mm : + 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

## SETTING

Rated speed rpm : 600  
Pressure hPa : 1200  
rack travel mm : 14.45  
Tolerance mm :  $\pm 0.05$

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 9.05  
Tolerance mm :  $\pm 0.15$

## MEASUREMENT

Rated speed rpm : 600  
Pressure hPa : 250  
rack travel mm : 9.90  
Tolerance mm :  $\pm 0.10$

Pressure hPa : 550  
rack travel mm : 12.60  
Tolerance mm :  $\pm 0.05$

## Start interlock

Rated speed rpm :  $> 100$   
Rated speed rpm :  $< 220$

Check speed 1/min :  $> 80$   
Check speed 1/min :  $< 240$

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 224.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 2.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 5.0$   
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : 550  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 204.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.5$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.5$

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 133.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 2.5$   
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

## STARTING FUEL DELIVERY

Rated speed rpm : 100

## LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 6.50  
Tolerance mm :  $\pm 0.10$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.0$   
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 11.08.94  
Test oil : ISO 4113

Combination No. : 0 402 648 921

Injection pump  
Pump designation : PE8P120A320LS7839  
: -10  
EP type number : 0 412 628 855

Governor  
Governor design. : RQ300/950PA993-8  
Governor no. : 0 421 801 618

Cust. part No. : 0210748002

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442 LA  
Power KW : 370.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 110  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

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Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 8

## CRT ZERO POSITION

Rack travel in mm : 15.20  
Tolerance mm : ± 0.10

---

**BASIC SETTING**

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 266.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

**Speed**

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 300

Rack travel in mm : 6.30  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

**Speed**

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

**(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR**

---

**GUIDE SLEEVE POSITION**

control lever  
position degree : 109  
Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm : ± 0.80

---

**FULL LOAD DELIVERY AT FULL LOAD STOP**

Rated speed rpm : 550

Aneroid pressure  
hPa : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 266.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

**CONTROL LEVER**

control lever  
position degree : 104.0  
tolerance degree : ± 4.0

**RATED SPEED**

rack travel mm : 15.50  
Rated speed rpm : 998  
Tolerance 1/min : ± 8

rack travel mm : 4.00  
Rated speed rpm : 1090  
Tolerance 1/min : ± 15

rack travel mm : 0.75  
Tolerance mm : ± 0.75  
Rated speed rpm : 1150

---

**LOW IDLE**

control lever  
position degree : 74.0  
tolerance degree : ± 4.0

**Setting point w/out bumper spring**

Rated speed rpm : 200

CRT mm min. : > 7.60

**Testing:**

Rated speed rpm : 300  
rack travel mm : 6.30  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 400  
Tolerance 1/min : ± 20

---

#### TORQUE CONTROL

Rated speed rpm : 950  
rack travel mm : 16.50  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 550  
Pressure hPa : 900

##### 2-stage LDA setting

Rated speed rpm : 700  
Pressure hPa : 1100  
rack travel mm : 0.20

##### MEASUREMENT

Rated speed rpm : 550  
  
Pressure hPa : 550  
rack travel mm : -2.25  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 1300  
rack travel mm : 0.55  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 250  
rack travel mm : -5.00  
Tolerance mm :  $\pm$  0.10

---

##### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 2000  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 282.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

Aneroid pressure  
hPa : 1300  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 273.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.5

---

Aneroid pressure  
hPa : 550  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 204.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.5

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 133.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 270.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  14.0

---

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 6.30  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 02.11.93

Test oil : ISO 4113

Combination No. : 0 402 648 932B

## Injection pump

Pump designation : PE8P120A320LS7849

EP type number : 0 412 628 864

## Governor

Governor design. : RQV300...1050PA1034

Governor no. : 0 421 813 993

Cust. part No. : 9274608

## Customer-spec. information

Customer : LIEBHERR

Motor : D 9308 TI

Power kW : 360.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

Test nozzle holde  
assembly

: 1 688 901 105

Opening pressure  
bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.55

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 8- 7- 2- 6

: - 3- 5- 4

Phasing : 0-45-90-135-180

: -225-270-315

Tolerance : ± 0.30

Check

tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 14.55

Tolerance mm : ± 0.05

Del. quantity

cm<sup>3</sup>/1000 strokes : 264.0

Tolerance

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance

cm<sup>3</sup>/1000S. : ± 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 350

Del. quantity  
cm<sup>3</sup>/1000 strokes : 24.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1118  
guide sleeve  
travel mm : 10.51  
Tolerance mm : ± 0.25

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.94  
Tolerance mm : ± 0.25

Rated speed rpm : 783  
guide sleeve  
travel mm : 6.60  
Tolerance mm : ± 0.25

Rated speed rpm : 356  
guide sleeve  
travel mm : 1.95  
Tolerance mm : ± 0.25

Rated speed rpm : 406  
guide sleeve  
travel mm : 2.67  
Tolerance mm : ± 0.25

Rated speed rpm : 490  
guide sleeve  
travel mm : 3.59  
Tolerance mm : ± 0.25

Rated speed rpm : 1320

guide sleeve  
travel mm : 13.50  
Tolerance mm : ± 0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1140

Rack travel in mm : 13.50  
Tolerance mm : ± 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 264.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 107.0  
tolerance degree : ± 4.0

RATED SPEED  
rack travel mm : 13.50  
Rated speed rpm : 945  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1085  
Tolerance 1/min : ± 15

rack travel mm : 0.70  
Tolerance mm : ± 0.70  
Rated speed rpm : 1300

##### LOW IDLE



control lever  
position degree : 81.0  
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 300

CRT mm min. : > 8.50

Testing:

rack travel mm : 2.00  
Rated speed rpm : 460  
Tolerance 1/min : ± 30

Rated speed rpm : 385

---

#### TORQUE CONTROL

Rated speed rpm : 900  
rack travel mm : 14.55  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
rack travel mm : 14.55  
Tolerance mm : ± 0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 550  
Pressure hPa : 1400  
rack travel mm : 14.55  
Tolerance mm : ± 0.05

Rated speed rpm : 550  
Pressure hPa : -  
rack travel mm : 11.75  
Tolerance mm : ± 0.10

##### MEASUREMENT

Rated speed rpm : 550  
Pressure hPa : 710  
rack travel mm : 12.55  
Tolerance mm : ± 0.10

Pressure hPa : 860  
rack travel mm : 13.75  
Tolerance mm : ± 0.05

---

Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 320

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 340

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 220.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : ± 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 14.0

---

#### LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 24.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.11.93  
Test oil : ISO 4113

Combination No. : 0 402 648 939

Injection pump  
Pump designation : PE8P120A320LS7863-1  
EP type number : 0 412 628 876

Governor  
Governor design. : RQV300...1050PA797  
: -37  
Governor no. : 0 421 814 003

Cust. part No. : 0220743302

Customer spec. information  
Customer : MB-NFZ  
Motor : OM442 LA  
Power KW : 405.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. L/h : 110  
Tolerance L/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.75  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °N° : ± 0.75

Start of delivery mark

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 14.50  
Tolerance mm : ± 0.05

Del. quantity cm <sup>3</sup> /1000 strokes	: 282.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.0
Spread	
Tolerance cm <sup>3</sup> /1000 strokes	: 6.0
Check tolerance cm <sup>3</sup> /1000S.	: 9.0

Rated speed rpm	: 300
Rack travel in mm	: 5.50
Tolerance mm	: ± 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	: 19.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 3.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 6.0
Spread	
Tolerance cm <sup>3</sup> /1000 strokes	: 6.0
Check tolerance cm <sup>3</sup> /1000S.	: 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever position degree	: - 1
Rated speed rpm	: 1130
Rack travel in mm	: 13.40
Tolerance mm	: ± 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
Aneroid pressure hPa	: 1300
Del. quantity cm <sup>3</sup> /1000 strokes	: 282.0

Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.0
Spread	
Tolerance cm <sup>3</sup> /1000 strokes	: 6.0
Check tolerance cm <sup>3</sup> /1000S.	: 9.0

##### CONTROL LEVER

control lever position degree	: 121.0
tolerance degree	: ± 4.0

##### RATED SPEED

rack travel mm	: 13.50
Rated speed rpm	: 1098
Tolerance 1/min	: ± 8

rack travel mm	: 4.00
Rated speed rpm	: 1185
Tolerance 1/min	: ± 15

rack travel mm	: 0.75
Tolerance mm	: ± 0.75
Rated speed rpm	: 1250

##### LOW IDLE

control lever position degree	: 84.0
tolerance degree	: ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm	: 200
CRT mm min.	: > 6.80

##### Testing:

Rated speed rpm	: 300
rack travel mm	: 5.50
Tolerance mm	: ± 0.10

Rated speed rpm	: 400
-----------------	-------

##### TORQUE CONTROL

Rated speed rpm	: 1050
rack travel mm	: 14.50
Tolerance mm	: ± 0.05

Rated speed rpm : 600  
 rack travel mm : 14.50  
 Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 400  
 Pressure hPa : 1300  
 rack travel mm : 14.50  
 Tolerance mm :  $\pm$  0.05

Rated speed rpm : 400  
 Pressure hPa : -  
 rack travel mm : 7.85  
 Tolerance mm :  $\pm$  0.15

##### MEASUREMENT

Pressure hPa : -  
 Rated speed rpm : 500  
 rack travel mm : 7.85  
 Tolerance mm :  $\pm$  0.15

Rated speed rpm : 400  
 Pressure hPa : 550  
 Tolerance mm :  $\pm$  0.05

Pressure hPa : 1000  
 rack travel mm : 13.55  
 Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
 hPa : 1300  
 Rated speed rpm : 600  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 296.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  5.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
 hPa : 550  
 Rated speed rpm : 400  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 204.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.5

---

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 132.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 280.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

#### LOW IDLE

Rated speed rpm : 300  
 Rack travel in mm : 5.50  
 Tolerance mm :  $\pm$  0.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 19.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  6.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 6.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.09.93  
Test oil : ISO 4113  
Combination No. : 0 402 648 956  
Injection pump  
Pump designation : PE8P120A320LS7863  
EP type number : 0 412 628 874  
Governor  
Governor design. : RQV300...1050PA1050  
                  : -1K  
Governor no. : 0 421 815 339

Cust. part No. : 0240740102

Customer spec. information  
Customer : MB-NFZ  
Motor : OM442 LA  
Power kW : 370.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. L/h : 105  
Tolerance L/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

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Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 14.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
                  : - 5- 4- 1

Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 14.05  
Tolerance mm : ± 0.05

Del. quantity cm <sup>3</sup> /1000 strokes	: 258.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.0
Spread	
Tolerance cm <sup>3</sup> /1000 strokes	: 6.0
Check tolerance cm <sup>3</sup> /1000S.	: 9.0

Rated speed rpm	: 300
Rack travel in mm	: 5.80
Tolerance mm	: ± 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	: 19.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 3.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 6.0
Spread	
Tolerance cm <sup>3</sup> /1000 strokes	: 6.0
Check tolerance cm <sup>3</sup> /1000S.	: 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1106
guide sleeve travel mm	: 8.96
Tolerance mm	: ± 0.10
Rated speed rpm	: 300
guide sleeve travel mm	: 1.85
Tolerance mm	: ± 0.10
Rated speed rpm	: 850
guide sleeve travel mm	: 5.60
Tolerance mm	: ± 0.25
Rated speed rpm	: 347

guide sleeve travel mm	: 2.72
Tolerance mm	: ± 0.25

Rated speed rpm	: 397
guide sleeve travel mm	: 3.26
Tolerance mm	: ± 0.25

Rated speed rpm	: 530
guide sleeve travel mm	: 3.77
Tolerance mm	: ± 0.25

Rated speed rpm	: 1219
guide sleeve travel mm	: 12.00
Tolerance mm	: ± 0.25

Rated speed rpm	: 1300
guide sleeve travel mm	: 13.50
Tolerance mm	: ± 0.50

##### GUIDE SLEEVE POSITION

control lever position degree	: - 1
Rated speed rpm	: 1180

Rack travel in mm	: 13.00
Tolerance mm	: ± 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
Aneroid pressure hPa	: -
Del. quantity cm <sup>3</sup> /1000 strokes	: 258.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.0
Spread	
Tolerance cm <sup>3</sup> /1000 strokes	: 6.0
Check tolerance cm <sup>3</sup> /1000S.	: 9.0

##### CONTROL LEVER

control lever position degree	: 119.0
tolerance degree	: ± 4.0



RATED SPEED  
 rack travel mm : 13.00  
 Rated speed rpm : 1095  
 Tolerance 1/min :  $\pm$  5  
  
 rack travel mm : 4.00  
 Rated speed rpm : 1170  
 Tolerance 1/min :  $\pm$  15  
  
 rack travel mm : 0.75  
 Tolerance mm :  $\pm$  0.75  
 Rated speed rpm : 1300

#### LOW IDLE

control lever  
 position degree : 75.0  
 tolerance degree :  $\pm$  4.0  
  
 Setting point w/out bumper spring

Rated speed rpm : 200  
  
 CRT mm min. :  $>$  7.70

#### Testing:

Rated speed rpm : 300  
 rack travel mm : 5.80  
 Tolerance mm :  $\pm$  0.10  
  
 Rated speed rpm : 400

#### TORQUE CONTROL

Rated speed rpm : 1050  
 rack travel mm : 14.05  
 Tolerance mm :  $\pm$  0.05

Rated speed rpm : 950  
 rack travel mm : 14.45  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 850  
 rack travel mm : 14.60  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 750  
 rack travel mm : 14.20  
 Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
 rack travel mm : 13.90  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 650  
 rack travel mm : 13.70  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 550  
 rack travel mm : 13.50  
 Tolerance mm :  $\pm$  0.15

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 850  
 Pressure hPa : 1200  
 rack travel mm : 14.70  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
 Pressure hPa : -  
 rack travel mm : 7.95  
 Tolerance mm :  $\pm$  0.15

#### MEASUREMENT

Rated speed rpm : 850  
  
 Pressure hPa : 150  
 rack travel mm : 8.90  
 Tolerance mm :  $\pm$  0.10

Pressure hPa : 550  
 rack travel mm : 12.40  
 Tolerance mm :  $\pm$  0.05

#### Start interlock

Rated speed rpm :  $>$  100  
 Rated speed rpm :  $<$  220

Check  
 speed 1/min :  $>$  80  
 Check  
 speed 1/min :  $<$  240

#### FUEL DELIVERY CHARACTERISTICS

rack travel mm : 14.60  
 Tolerance mm :  $\pm$  0.10

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 750

Del. quantity  
cm<sup>3</sup>/1000 strokes : 262.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 256.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 204.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 133.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100

B24

rack travel mm : 11.60  
Tolerance mm : ± 0.40  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 14.0

---

#### LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 5.80  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.12.94  
Test oil : ISO 4113  
Combination No. : 0 402 648 966  
Injection pump  
Pump designation : PE8P120A720LS7189  
: -10  
EP type number : 0 412 628 893  
Governor  
Governor design. : RGV350...1050PA795  
: -19  
Governor no. : 0 421 814 057  
Cust. part No. : 1340523

Customer spec. information  
Customer : SCANIA  
Motor : DSI1458M

## TEST BENCH REQUIREMENTS

Inlet line : 4.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 025  
Inlet press. bar : 2.5  
Tolerance bar : ± 0.1  
Tolerance l/h : ± 20.0  
Test nozzle holder  
assembly : 1 688 901 104  
Opening pressure  
bar : 251.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 2- 7- 3- 4  
: - 5- 6- 8

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 350

Rack travel in mm : 4.60  
 Tolerance mm : + 0.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 21.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 6.0  
 Spread  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 4.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1108  
 guide sleeve  
 travel mm : 8.05  
 Tolerance mm : + 0.15

Rated speed rpm : 350  
 guide sleeve  
 travel mm : 1.44  
 Tolerance mm : + 0.20

Rated speed rpm : 781  
 guide sleeve  
 travel mm : 5.24  
 Tolerance mm : + 0.25

Rated speed rpm : 411  
 guide sleeve  
 travel mm : 2.06  
 Tolerance mm : + 0.25

Rated speed rpm : 461  
 guide sleeve  
 travel mm : 2.64  
 Tolerance mm : + 0.25

Rated speed rpm : 520  
 guide sleeve  
 travel mm : 3.19  
 Tolerance mm : + 0.25

Rated speed rpm : 1390  
 guide sleeve  
 travel mm : 11.50  
 Tolerance mm : + 0.50

##### GUIDE SLEEVE POSITION

control lever  
 position degree : - 1  
 Rated speed rpm : 1210

Rack travel in mm : 12.60  
 Tolerance mm : + 1.30

##### CONTROL LEVER

control lever  
 position degree : 48.0  
 tolerance degree : + 4.0

control lever  
 position degree : 107.0  
 tolerance degree : + 4.0

##### RATED SPEED

rack travel mm : 12.60  
 Rated speed rpm : 1095  
 Tolerance 1/min : + 5  
 Check  
 speed 1/min : + 10

rack travel mm : 4.00  
 Rated speed rpm : 1220  
 Tolerance 1/min : + 15  
 Check  
 speed 1/min : + 20

rack travel mm : 0.50  
 Tolerance mm : + 0.50  
 Rated speed rpm : 1350

##### LOW IDLE

control lever  
 position degree : 73.0  
 tolerance degree : + 4.0

control lever  
 position degree : 15.0  
 tolerance degree : + 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 250

CRT mm min. : > 7.50

##### Testing:

Rated speed rpm : 350

rack travel mm : 4.60  
Tolerance mm : + 0.10  
  
Rated speed rpm : 325

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 13.65  
Tolerance mm : + 0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 13.65  
Tolerance mm : + 0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.00  
Tolerance mm : + 0.20

#### MEASUREMENT

Rated speed rpm : 500  
  
Pressure hPa : 430  
rack travel mm : 10.90  
Tolerance mm : + 0.20

Pressure hPa : 750  
rack travel mm : 12.65  
Tolerance mm : + 0.05

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 144.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.00  
Tolerance mm : + 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 24.0

---

#### LOW IDLE

Rated speed rpm : 350  
  
Rack travel in mm : 4.60  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 11.03.98  
Test oil : ISO 4113  
  
Combination No. : 0 402 648 974  
  
Injection pump  
Pump designation : PE8P120A320LS7915  
EP type number : 0 412 628 929  
  
Governor  
Governor design. : RQ300/1150PA1374  
Governor no. : 0 421 801 833

Cust. part No. :

Customer spec. information  
Customer : DHI  
Motor : DV15TC  
Power KW : 272.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.20  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 16.00  
Tolerance mm : ± 1.50

Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.35  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 220.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

Rated speed rpm : 300

Rack travel in mm : 6.00  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1208  
guide sleeve

travel mm : 6.35  
Tolerance mm : ± 0.15

Rated speed rpm : 300  
guide sleeve

travel mm : 1.20  
Tolerance mm : ± 0.20

Rated speed rpm : 1150  
guide sleeve

travel mm : 6.00  
Tolerance mm : ± 0.10

Rated speed rpm : 457  
guide sleeve

travel mm : 3.70

C01

Tolerance mm : ± 0.10

Rated speed rpm : 600

guide sleeve  
travel mm : 6.00

Tolerance mm : ± 0.10

Rated speed rpm : 1380

guide sleeve  
travel mm : 11.50

Tolerance mm : ± 0.50

##### GUIDE SLEEVE POSITION

control lever

position degree : 109

Rated speed rpm : 600

Rack travel in mm : 20.00

Tolerance mm : ± 0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150

Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 220.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

##### CONTROL LEVER

control lever

position degree : 35.0

tolerance degree : ± 4.0

control lever

position degree : 99.0

tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 13.35

Rated speed rpm : 1202

Tolerance 1/min : ± 8

rack travel mm : 4.00

Rated speed rpm : 1295

Tolerance 1/min : + 15  
rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1350

---

#### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree : + 4.0

control lever  
position degree : 10.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. : > 7.20

#### Testing:

Rated speed rpm : 300  
rack travel mm : 6.00  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 440  
Tolerance 1/min : + 20

---

#### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 14.35  
Tolerance mm : + 0.05

Rated speed rpm : 650  
rack travel mm : 14.35  
Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 14.35  
Tolerance mm : + 0.05

Rated speed rpm : 500  
Pressure hPa : -

CO2

rack travel mm : 9.00  
Tolerance mm : + 0.20

#### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 650  
rack travel mm : 12.30  
Tolerance mm : + 0.20

Pressure hPa : 250  
rack travel mm : 10.00  
Tolerance mm : + 0.05

---

#### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 200

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 650  
Del. quantity  
cm3/1000 strokes : 238.0  
Tolerance  
cm3/1000 strokes : + 3.0  
Check tolerance  
cm3/1000S. : + 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm3/1000 strokes : 137.0  
Tolerance  
cm3/1000 strokes : + 1.0  
Check tolerance  
cm3/1000S. : + 4.0

---

#### STARTING FUEL DELIVERY

Del. quantity  
cm3/1000 strokes : 205.0  
Tolerance  
cm3/1000 strokes : + 10.0



Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 6.00  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.10.93

Test oil : ISO 4113

Combination No. : 0 402 649 800A

## Injection pump

Pump designation : PE10P120A320LS7809

EP type number : 0 412 629 800

## Governor

Governor design. : RQ300/1050PA856

Governor no. : 0 421 801 386

Cust. part No. :

## Customer spec. information

Customer : MB-NFZ

Motor : OM443 LA

Power KW : 370.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

## Overflow quantity

min. l/h : 140

Tolerance l/h : ± 10.0

## Test nozzle holde assembly

: 1 688 901 019

## Opening pressure bar

: 208.5

Tolerance bar : ± 1.5

C04

Test lines : 1 630 750 075

Outside diameter : 8.0

x inside diameter : 2.5

x length mm : 1000

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.05

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.50

Firing order : 10- 9- 4- 1- 8

: - 7- 6- 3- 5

: - 2

Phasing : 0-45-72-117-144

: -189-216-261-288

: -333

Tolerance : ± 0.30

## Check

tolerance °NW : ± 0.75

## Start of delivery mark

Barrel no. : 10

## CRT ZERO POSITION

Rack travel in mm : 14.00

Tolerance mm : ± 0.10

## BASIC SETTING

Del. quantity  
cm<sup>3</sup>/1000 strokes : 205.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.70  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : 109  
Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm : ± 0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 205.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 102.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 12.70  
Rated speed rpm : 1103  
Tolerance 1/min : ± 8

rack travel mm : 4.00  
Rated speed rpm : 1160  
Tolerance 1/min : ± 15

rack travel mm : 0.75  
Tolerance mm : ± 0.75  
Rated speed rpm : 1300

##### LOW IDLE

control lever  
position degree : 77.0  
tolerance degree : ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 8.30

##### Testing:

Rated speed rpm : 300  
rack travel mm : 6.70  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 400  
Tolerance 1/min : ± 20

##### TORQUE CONTROL

Rated speed rpm : 1050  
 rack travel mm : 13.80  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 800  
 rack travel mm : 14.40  
 Tolerance mm :  $\pm$  0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 600  
 Pressure hPa : 700

##### MEASUREMENT

Rated speed rpm : 600  
 Pressure hPa : 600  
 rack travel mm : -1.00  
 Tolerance mm :  $\pm$  0.10

Pressure hPa : 400  
 rack travel mm : -1.50  
 Tolerance mm :  $\pm$  0.10

Pressure hPa : 1100  
 rack travel mm : 1.00  
 Tolerance mm :  $\pm$  0.10

Pressure hPa : 960  
 rack travel mm : 0.35  
 Tolerance mm :  $\pm$  0.05

##### Start interlock

Rated speed rpm : > 100  
 Rated speed rpm : < 220

Check  
 speed 1/min : > 80  
 Check  
 speed 1/min : < 240

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 1050  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 207.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.5

CO6

Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 800  
 rack travel mm : 14.40  
 Tolerance mm :  $\pm$  0.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 219.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  5.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 134.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 240.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  14.0

#### LOW IDLE

Rated speed rpm : 300  
 Rack travel in mm : 6.70  
 Tolerance mm :  $\pm$  0.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.10.93  
Test oil : ISO 4113  
Combination No. : 0 402 649 808A  
Injection pump  
Pump designation : PE10P120A320LS7809  
: -1  
EP type number : 0 412 629 801  
Governor  
Governor design. : RQ300/1050PA762-6  
Governor no. : 0 421 801 471

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM443 A  
Power KW : 370.0

## TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 140  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

C08

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 2.5  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 10- 9- 4- 1- 8  
: - 7- 6- 3- 5  
: - 2

Phasing : 0-45-72-117-144  
: -189-216-261-288  
: -333  
Tolerance : ± 0.30  
Check  
tolerance °/W : ± 0.75

Start of delivery mark

Barrel no. : 10

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 14.05  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 201.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.70  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : 109  
Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm : ± 0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 201.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 98.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 13.00  
Rated speed rpm : 1103  
Tolerance 1/min : ± 8

rack travel mm : 4.00  
Rated speed rpm : 1180  
Tolerance 1/min : ± 15

rack travel mm : 0.75  
Tolerance mm : ± 0.75  
Rated speed rpm : 1250

##### LOW IDLE

control lever  
position degree : 76.0  
tolerance degree : ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 9.20

##### Testing:

Rated speed rpm : 300  
rack travel mm : 6.70  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 400  
Tolerance 1/min : ± 20

##### TORQUE CONTROL

Rated speed rpm : 1050

rack travel mm : 14.05  
Tolerance mm : + 0.05  
  
Rated speed rpm : 750  
rack travel mm : 14.80  
Tolerance mm : + 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : -

MEASUREMENT

Pressure hPa : 400  
rack travel mm : 0.70  
Tolerance mm : + 0.10  
  
Pressure hPa : 900  
rack travel mm : 3.15  
Tolerance mm : + 0.15

---

Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 220  
  
Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : -

c10

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 134.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 14.0

---

LOW IDLE

Rated speed rpm : 300  
  
Rack travel in mm : 6.70  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.08.94  
Test oil : ISO 4113  
Combination No. : 0 402 649 818  
Injection pump  
Pump designation : PE10P120A520LS7876  
EP type number : 0 412 629 812

Governor  
Governor design. : RQ750PA1158  
Governor no. : 0 421 801 727

Cust. part No. : 3-7276

Customer spec. information  
Customer : MAN  
Motor : D2840LE201  
Power KW : 443.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 10- 9- 4- 1- 8  
: - 7- 6- 3- 5  
: - 2

Phasing : 0-45-72-117-144  
: -189-216-261-288  
: -333

Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 10

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 15.75  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 370.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 759  
guide sleeve  
travel mm : 5.39  
Tolerance mm : + 0.25

Rated speed rpm : 490  
guide sleeve  
travel mm : -9.81  
Tolerance mm : + 0.25

Rated speed rpm : 840  
guide sleeve  
travel mm : 17.94  
Tolerance mm : + 0.25

Rated speed rpm : 795  
guide sleeve  
travel mm : 10.00  
Tolerance mm : + 0.25

Rated speed rpm : 850  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

##### GUIDE SLEEVE POSITION

Rack travel in mm : 89.00  
Tolerance mm : + 4.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 370.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 750  
rack travel mm : 14.70

Rated speed rpm : 787  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 950

Rated speed rpm : 751  
rack travel mm : 14.70

Rated speed rpm : 788  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 950

Rated speed rpm : 752  
rack travel mm : 14.70

Rated speed rpm : 789  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 950

Rated speed rpm : 753  
rack travel mm : 14.70

Rated speed rpm : 790  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 950

Rated speed rpm : 754  
rack travel mm : 14.70

Rated speed rpm : 791  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 950

Rated speed rpm : 755  
rack travel mm : 14.70

Rated speed rpm : 792  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 950

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 15.75  
Tolerance mm :  $\pm$  0.05

---

#### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0

C13

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.02.98  
Test oil : ISO 4113  
  
Combination No. : 0 402 666 802  
  
Injection pump  
Pump designation : PE6P120A320/3LS7883  
EP type number : 0 412 626 938  
  
Governor  
Governor design. : RSV600...1050POA591  
Governor no. : 0 421 833 457

Cust. part No. : 0250746802

Customer-spec. information  
Customer : MS-NFZ  
Motor : OM 401 LA  
Power KW : 213.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-  
: 1

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

## BASIC SETTING

Rated speed rpm : 1030

Rack travel in mm : 12.60  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 207.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 600

Rack travel in mm : 3.80

Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : + 0.20

governor spring  
pre-tension  
click setting x : 1.50

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1030  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 207.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

C15

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 88.0  
tolerance degree : + 4.0

---

##### LOW IDLE

control lever  
position degree : 71.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 600  
rack travel mm : 3.80  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 630  
Tolerance 1/min : + 30

##### SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

---

##### TORQUE CONTROL

Rated speed rpm : 1030  
rack travel mm : 12.60  
Tolerance mm : + 0.05

Rated speed rpm : 700  
rack travel mm : 12.60  
Tolerance mm : + 0.10

---

## FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 206.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

---

## STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 180.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 14.0

---

## LOW IDLE

Rated speed rpm : 600  
Rack travel in mm : 3.80  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 28.11.90  
Test oil : ISO 4113

Combination No. : 0 402 670 804

Injection pump  
Pump designation : PE12P120A320LS7813  
: -1  
EP type number : 0 412 620 811

Governor  
Governor design. : RSV350...750POA825  
: -5  
Governor no. : 0 421 833 277

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 444 LA  
Power KW : 441.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Overflow quantity  
min. l/h : 160  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 2.5  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.00  
Tolerance mm : ± 1.00

Firing order : 12- 1- 5- 9- 8  
: - 3- 4- 11- 10  
: - 2- 6- 7

Phasing : 0-45-60-105-120  
: -165-180-225-240  
: -285-300-345  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Del. quantity  
cm<sup>3</sup>/1000 strokes : 280.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.70  
Tolerance mm : + 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Speed  
Tolerance

cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.85  
Tolerance mm : + 0.55

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 280.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Speed  
Tolerance

cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### CONTROL LEVER

control lever  
position degree : 24.0  
tolerance degree : + 4.0

#### RATED SPEED

rack travel mm : 13.10  
Rated speed rpm : 753  
Tolerance 1/min : + 3

rack travel mm : 4.00  
Rated speed rpm : 785  
Tolerance 1/min : + 5

rack travel mm : 1.00  
Tolerance mm : + 0.70  
Rated speed rpm : 1000

#### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 750  
rack travel mm : 15.50

Rated speed rpm : 779  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm : + 0.70  
Rated speed rpm : 900

Rated speed rpm : 751  
rack travel mm : 15.50

Rated speed rpm : 780  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm : + 0.70  
Rated speed rpm : 900

Rated speed rpm : 752  
rack travel mm : 15.50

Rated speed rpm : 781  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm : + 0.70  
Rated speed rpm : 900

Rated speed rpm : 753



rack travel mm : 15.50  
Rated speed rpm : 782  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm : + 0.70  
Rated speed rpm : 900

Rated speed rpm : 754  
rack travel mm : 15.50

Rated speed rpm : 783  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm : + 0.70  
Rated speed rpm : 900

Rated speed rpm : 755  
rack travel mm : 15.50

Rated speed rpm : 784  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm : + 0.70  
Rated speed rpm : 900

---

#### LOW IDLE

control lever  
position degree : 13.0  
tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 5.70  
Tolerance mm : + 0.20

#### SET IDLE AUXILIARY SPRING

Rated speed rpm : 350

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 600

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 275.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 14.0

---

#### LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 5.70  
Tolerance mm : + 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 20.02.98  
Test oil : ISO 4113

Combination No. : 0 402 670 807

Injection pump  
Pump designation : PE12P120A320LS7814  
: -1

EP type number : 0 412 620 819

Governor  
Governor design. : RSV375...1050POA535  
: -3

Governor no. : 0 421 833 328

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 444 LA  
Power KW : 588.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0  
Tolerance bar : +- 0.1

Overflow quantity  
min. l/h : 160  
Tolerance l/h : + 20.0

Test nozzle holde  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5

C20

Tolerance bar : +- 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0

Prestroke mm : 4.85  
Tolerance mm : +- 0.05  
Check  
tolerance mm : +- 0.10

Rack travel in mm : 20.00  
Tolerance mm : +- 1.00

Firing order : 12- 1- 5- 9- 3  
: - 3- 4- 11- 10  
: - 2- 6- 7

Phasing : 0-45-60-105-120  
: -165-180-225-240  
: -285-300-345  
Tolerance : +- 0.50

Check  
tolerance \*NW : +- 0.75

## Start of delivery mark

Tolerance : +- 0.10  
Check  
tolerance \*NW : +- 0.75

Barrel no. : 12

## CRT ZERO POSITION

Rack travel in mm : 14.00  
Tolerance mm : ± 0.10

---

#### BASIC SETTING

Rated speed rpm : 650

---

Rack travel in mm : 14.00  
Tolerance mm : ± 0.10

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 263.5

---

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

---

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 375

Rack travel in mm : 5.25  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3

C21

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 3.25

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 650

Aneroid pressure  
hPa : 1100

Del. quantity  
cm<sup>3</sup>/1000 strokes : 263.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

#### CONTROL LEVER

control lever  
position degree : 100.0  
tolerance degree : ± 4.0

---

#### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1070  
Tolerance 1/min : ± 1  
rack travel mm : 12.80

Rated speed rpm : 1154  
Tolerance 1/min : ± 4  
rack travel mm : 4.00

rack travel mm : 0.90  
Tolerance mm : ± 0.60  
Rated speed rpm : 1250

Rated speed rpm : 1072  
Tolerance 1/min : ± 1  
rack travel mm : 12.80

Rated speed rpm : 1156  
Tolerance 1/min : ± 4  
rack travel mm : 4.00

rack travel mm : 0.90

Tolerance mm :  $\pm$  0.60  
Rated speed rpm : 1250

Rated speed rpm : 1074  
Tolerance 1/min :  $\pm$  1  
rack travel mm : 12.80

Rated speed rpm : 1158  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.90  
Tolerance mm :  $\pm$  0.60  
Rated speed rpm : 1250

Rated speed rpm : 1076  
Tolerance 1/min :  $\pm$  1  
rack travel mm : 12.80

Rated speed rpm : 1160  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.90  
Tolerance mm :  $\pm$  0.60  
Rated speed rpm : 1250

Rated speed rpm : 1078  
Tolerance 1/min :  $\pm$  1  
rack travel mm : 12.80

Rated speed rpm : 1162  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.90  
Tolerance mm :  $\pm$  0.60  
Rated speed rpm : 1250

Rated speed rpm : 1080  
Tolerance 1/min :  $\pm$  1  
rack travel mm : 12.80

Rated speed rpm : 1164  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.90  
Tolerance mm :  $\pm$  0.60  
Rated speed rpm : 1250

---

#### LOW IDLE

control lever  
position degree : 76.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. :  $>$  8.00

#### Testing:

Rated speed rpm : 375  
rack travel mm : 5.25  
Tolerance mm :  $\pm$  0.10

rack travel mm :  $>$  2.00  
Rated speed rpm : 410

#### SET IDLE AUXILIARY SPRING

Rated speed rpm : 100  
rack travel mm : 2.00

---

#### TORQUE CONTROL

Rated speed rpm : 650  
rack travel mm : 14.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1030  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 750  
rack travel mm : 14.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 950  
rack travel mm : 14.30  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 600  
Pressure hPa : 1100  
Tolerance mm :  $\pm$  0.10

#### MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 400  
rack travel mm : -4.00

Tolerance mm : + 0.10  
Pressure hPa : 1370  
rack travel mm : 0.30  
Tolerance mm : + 0.05

Pressure hPa : 650  
rack travel mm : -1.40  
Tolerance mm : + 0.10

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1800  
Rated speed rpm : 1030  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 262.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : 1800  
Rated speed rpm : 750  
rack travel mm : 14.50  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 280.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 154.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 270.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 14.0

---

#### LOW IDLE

Rated speed rpm : 375  
Rack travel in mm : 5.25  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.03.97  
Test oil : ISO 4113  
  
Combination No. : 0 402 670 810  
  
Injection pump  
Pump designation : PE12P120A520/5RS7375  
EP type number : 0 412 620 844  
  
Governor  
Governor design. : RSUV300...900POA361  
Governor no. : 0 421 829 110

Cust. part No. : 1 2277 426

## Customer-spec. information

Customer : MWM  
Motor : TBD 616-V12  
Power KW : 648.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2/3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 120  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 13.00  
Tolerance mm : ± 0.50

Firing order : 1- 2- 9-10- 5- 6  
                  : - 11- 12- 3- 4  
                  : - 7- 8

Phasing : 0-30-60-90-120-150  
          : -180-210-240-270  
          : -300-330  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.30  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 325.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : 4.90  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : + 0.20

governor spring  
pre-tension  
click setting x : 3.25

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 325.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### CONTROL LEVER

control lever  
position degree : 105.0  
tolerance degree : + 4.0

#### RATED SPEED

rack travel mm : 1.00  
Tolerance mm : + 0.70  
Rated speed rpm : 950

#### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 750  
rack travel mm : 12.30

Rated speed rpm : 784  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm : + 0.70  
Rated speed rpm : 950

Rated speed rpm : 751  
rack travel mm : 12.30

Rated speed rpm : 785  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm : + 0.70  
Rated speed rpm : 950

Rated speed rpm : 752

rack travel mm : 12.30

Rated speed rpm : 786  
Tolerance 1/min :  $\pm 4$   
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm :  $\pm 0.70$   
Rated speed rpm : 950

Rated speed rpm : 753  
rack travel mm : 12.30

Rated speed rpm : 787  
Tolerance 1/min :  $\pm 4$   
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm :  $\pm 0.70$   
Rated speed rpm : 950

Rated speed rpm : 754  
rack travel mm : 12.30

Rated speed rpm : 788  
Tolerance 1/min :  $\pm 4$   
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm :  $\pm 0.70$   
Rated speed rpm : 950

Rated speed rpm : 755  
rack travel mm : 12.30

Rated speed rpm : 789  
Tolerance 1/min :  $\pm 4$   
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm :  $\pm 0.70$   
Rated speed rpm : 950

---

#### LOW IDLE

control lever  
position degree : 78.0  
tolerance degree :  $\pm 4.0$

Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 4.40  
Tolerance mm :  $\pm 0.10$

#### Testing:

Rated speed rpm : 325  
rack travel mm : 4.90  
Tolerance mm :  $\pm 0.10$

rack travel mm : 2.00  
Rated speed rpm : 360  
Tolerance 1/min :  $\pm 30$

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 13.30  
Tolerance mm :  $\pm 0.05$

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 350.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 20.0$   
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm 24.0$

---

#### LOW IDLE

Rated speed rpm : 325  
Rack travel in mm : 4.90  
Tolerance mm :  $\pm 0.10$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.0$   
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm 6.0$   
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.04.97  
Test oil : ISO 4113

Combination No. : 0 402 670 812

Injection pump  
Pump designation : PE12P120A320LS7902  
EP type number : 0 412 620 848

Governor  
Governor design. : RSV350...1050POA662  
Governor no. : 0 421 833 579

Cust. part No. : 027 074 4302

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 444 LA  
Power KW : 448.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 077

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 110  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 12- 1- 5- 9- 8  
                  : - 3- 4- 11- 10  
                  : - 2- 6- 7

Phasing : 0-45-60-105-120  
          : -165-180-225-240  
          : -285-300-345

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance \*NW : ± 0.75

Barrel no. : 12

## BASIC SETTING

Rated speed rpm : 1030

Rack travel in mm : 13.40  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 199.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000s. : + 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

Rated speed rpm : 350

Rack travel in mm : 6.20  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000s. : + 6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : + 0.20

governor spring  
pre-tension  
click setting x : 3.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1030

Aneroid pressure  
hPa : 1250

Del. quantity  
cm<sup>3</sup>/1000 strokes : 199.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000s. : + 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

##### CONTROL LEVER

control lever  
position degree : 94.0  
tolerance degree : + 4.0

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1070  
rack travel mm : 12.40

Rated speed rpm : 1145  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1350

Rated speed rpm : 1071  
rack travel mm : 12.40

Rated speed rpm : 1146  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1350

Rated speed rpm : 1072  
rack travel mm : 12.40

Rated speed rpm : 1147  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1350

Rated speed rpm : 1073  
rack travel mm : 12.40

Rated speed rpm : 1148  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1350

Rated speed rpm : 1074  
rack travel mm : 12.40

Rated speed rpm : 1149  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1350

Rated speed rpm : 1075  
rack travel mm : 12.40

Rated speed rpm : 1150  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1350

---

#### LOW IDLE

control lever  
position degree : 72.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. :  $>$  9.30

Testing:

Rated speed rpm : 350  
rack travel mm : 6.20  
Tolerance mm :  $\pm$  0.10

D01

rack travel mm : 2.00  
Rated speed rpm : 405  
Tolerance 1/min :  $\pm$  30

#### SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

---

#### TORQUE CONTROL

Rated speed rpm : 1030  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1250  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.15

#### MEASUREMENT

Rated speed rpm : 500  
  
Pressure hPa : 550  
rack travel mm : 12.65  
Tolerance mm :  $\pm$  0.20

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1250  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 200.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 162.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

---

#### LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 6.20  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 06.03.98

Test oil : ISO 4113

Combination No. : 0 402 676 830

## Injection pump

Pump designation : PE6P120A320LS7894

EP type number : 0 412 626 954

## Governor

Governor design. : RSV600...1050POA642

Governor no. : 0 421 833 556

Cust. part No. : 0270746002

## Customer-spec. information

Customer : MB-NFZ

Motor : OM 441 LA

Power KW : 285.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0

Tolerance bar : ± 0.1

Overflow quantity

min. l/h : 105

Tolerance l/h : ± 10.0

Test nozzle holder

assembly : 1 688 901 105

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

D03

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.75

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 19.00

Tolerance mm : ± 0.50

Firing order

: 6- 3- 5- 2- 4-

: 1

Phasing

: 0-45-120-165-240

: -285

Tolerance

: ± 0.50

Check

tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10

Check

tolerance °NW : ± 0.75

Barrel no.

: 6

## BASIC SETTING

Rated speed rpm : 1075

---

Rack travel in mm : 13.70  
Tolerance mm : + 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 251.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 600

Rack travel in mm : 2.00  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : + 0.20

governor spring  
pre-tension  
click setting x : 1.50

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1075

Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 251.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

#### CONTROL LEVER

control lever  
position degree : 89.0  
tolerance degree : + 4.0

#### RATED SPEED

rack travel mm : 12.70

Rated speed rpm : 1115

Tolerance 1/min : + 5

Check  
speed 1/min : + 10

---

#### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 600  
rack travel mm : 2.00  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 630  
Tolerance 1/min : + 30

---

#### TORQUE CONTROL

Rated speed rpm : 1075

rack travel mm : 13.70

Tolerance mm : + 0.05

Rated speed rpm : 800  
rack travel mm : 14.75  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000  
rack travel mm : 14.35  
Tolerance mm :  $\pm$  0.15

---

End of test specification sheet

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 291.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 290.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 600  
Rack travel in mm : 2.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 06.03.98

Test oil : ISO 4113

Combination No. : 0 402 678 803

## Injection pump

Pump designation : PE8P120A320LS7801-1

EP type number : 0 412 628 818

## Governor

Governer design. : RSV350...750POA825

: -3

Governer no. : 0 421 333 260

Cust. part No. :

## Customer spec. information

Customer : MB-NFZ

Motor : OM442A

Power KW : 240.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

Overflow quantity

min. L/h : 110

Tolerance L/h : ± 10.0

Test nozzle holde  
assembly

: 1 688 901 019

Opening pressure  
bar

: 208.5

Tolerance bar : ± 1.5

D06

Test lines : 1 680 750 067

Outside diameter : 6.0

x inside diameter : 1.5

x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.25

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 8- 7- 2- 6- 3

: - 5- 4- 1

Phasing : 0-45-90-135-180

: -225-270-315

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 15.15

Tolerance mm : ± 0.05

Del. quantity

cm<sup>3</sup>/1000 strokes : 234.0



---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spread

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 350

Rack travel in mm : 5.30

Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : + 0.20

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 234.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 78.0  
tolerance degree : + 4.0

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 750  
rack travel mm : 14.15

Rated speed rpm : 789  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 900

Rated speed rpm : 751  
rack travel mm : 14.15

Rated speed rpm : 790  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 900

Rated speed rpm : 752  
rack travel mm : 14.15

Rated speed rpm : 791  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 900

Rated speed rpm : 753  
rack travel mm : 14.15

Rated speed rpm : 792  
Tolerance 1/min : + 4

rack travel mm : 4.00  
rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 900

Rated speed rpm : 754  
rack travel mm : 14.15

Rated speed rpm : 793  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 900

Rated speed rpm : 755  
rack travel mm : 14.15

Rated speed rpm : 794  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 900

---

#### LOW IDLE

control lever  
position degree : 64.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 15.00

#### Testing:

Rated speed rpm : 350  
rack travel mm : 5.30  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 380  
Tolerance 1/min : + 30

#### SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

---

#### TORQUE CONTROL

DO8

Rated speed rpm : 700  
rack travel mm : 15.15  
Tolerance mm : + 0.05

Rated speed rpm : 600  
rack travel mm : 15.15  
Tolerance mm : + 0.10

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 236.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 240.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 14.0

---

#### LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 5.30  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm3/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 27.06.95  
Test oil : ISO 4113  
  
Combination No. : 0 402 678 828  
  
Injection pump  
Pump designation : PE8P120A520/5RS7381  
EP type number : 0 412 628 907  
  
Governor  
Governor design. : RSUV300...900POA363  
Governor no. : 0 421 829 111

Cust. part No. : 1 2277 434

## Customer-spec. information

Customer : MWM  
Motor : TBD 616  
Power KW : 432.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 13.00  
Tolerance mm : ± 0.50

Firing order : 1- 8- 5- 4- 7  
: - 2- 3- 6

Phasing : 0-30-90-120-180  
: -210-270-300  
Tolerance : ± 0.50  
Check  
tolerance °Nw : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.30  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 325.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 325

Rack travel in mm : 4.30

Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

governor spring  
pre-tension  
click setting x : 3.25

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 325.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

CONTROL LEVER

control lever  
position degree : 109.0  
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 1.00  
Tolerance mm : + 0.70  
Rated speed rpm : 950

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 750  
rack travel mm : 12.30

Rated speed rpm : 784  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm : + 0.70  
Rated speed rpm : 950

Rated speed rpm : 751  
rack travel mm : 12.30

Rated speed rpm : 785  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm : + 0.70  
Rated speed rpm : 950

Rated speed rpm : 752  
rack travel mm : 12.30

Rated speed rpm : 786  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm : + 0.70  
Rated speed rpm : 950

Rated speed rpm : 753  
rack travel mm : 12.30

Rated speed rpm : 787  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 1.00

Tolerance mm : + 0.70  
Rated speed rpm : 950

Rated speed rpm : 754  
rack travel mm : 12.30

Rated speed rpm : 788  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm : + 0.70  
Rated speed rpm : 950

Rated speed rpm : 755  
rack travel mm : 12.30

Rated speed rpm : 789  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm : + 0.70  
Rated speed rpm : 950

---

#### LOW IDLE

control lever  
position degree : 81.0  
tolerance degree : + 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 3.80  
Tolerance mm : + 0.10

#### Testing:

Rated speed rpm : 325  
rack travel mm : 4.30  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 360  
Tolerance 1/min : + 30

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 13.30  
Tolerance mm : + 0.05

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 350.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 24.0

---

#### LOW IDLE

Rated speed rpm : 325  
Rack travel in mm : 4.30  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.11.96

Test oil : ISO 4113

Combination No. : 0 402 678 834

## Injection pump

Pump designation : PE8P120A320LS7903

EP type number : 0 412 628 920

## Governor

Governor design. : RSV600...950POA663

Governor no. : 0 421 833 580

Cust. part No. : 027 074 4602

## Customer-spec. information

Customer : MB-NFZ

Motor : OM442A

Power KW : 250.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

## Overflow quantity

min. l/h : 170

Tolerance l/h : ± 20.0

## Test nozzle holde

assembly : 1 688 901 105

## Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 2.5

x length mm : 1000

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.25

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.50

## Firing order

: 8- 7- 2- 6- 3

: - 5- 4- 1

## Phasing

: 0-45-90-135-180

: -225-270-315

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10

## Check

tolerance °NW : ± 0.50

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 930

---

Rack travel in mm : 13.40  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 201.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 600

Rack travel in mm : 4.30  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 930

Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 201.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 88.0  
tolerance degree :  $\pm$  4.0

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 970  
rack travel mm : 12.40

Rated speed rpm : 1035  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1100

Rated speed rpm : 971  
rack travel mm : 12.40

Rated speed rpm : 1036  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1100

Rated speed rpm : 972  
rack travel mm : 12.40

Rated speed rpm : 1037  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1100



Rated speed rpm : 973  
rack travel mm : 12.40

Rated speed rpm : 1038  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1100

Rated speed rpm : 974  
rack travel mm : 12.40

Rated speed rpm : 1039  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1100

Rated speed rpm : 975  
rack travel mm : 12.40

Rated speed rpm : 1040  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1100

---

#### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 600  
rack travel mm : 4.30  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 630  
Tolerance 1/min :  $\pm$  30

#### SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

---

#### TORQUE CONTROL

Rated speed rpm : 930  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 13.70  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : -

Rated speed rpm : 500  
Pressure hPa : 470  
rack travel mm : 0.70  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 630  
rack travel mm : 1.75  
Tolerance mm :  $\pm$  0.15

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 208.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 142.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 190.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 14.0

---

#### LOW IDLE

Rated speed rpm : 500  
Rack travel in mm : 4.30  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.12.94  
Test oil : ISO 4113  
Combination No. : 0 402 746 809  
Injection pump  
Pump designation : PES6P120A320RS7132  
EP type number : 0 412 726 806  
Governor  
Governor design. : RQ750PA836  
Governor no. : 0 421 801 373

Cust. part No. :

Customer-spec. information  
Customer : PERKINS  
Motor : EAGLE LE  
Power KW : 240.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 4- 2- 6- 3-  
: 5

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.85  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 279.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.40

Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 41.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Spread

#### (E) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 761

guide sleeve

travel mm : 4.04

Tolerance mm : + 0.25

Rated speed rpm : 920

guide sleeve

travel mm : 42.18

Tolerance mm : + 0.25

Rated speed rpm : 800

guide sleeve

travel mm : 8.98

Tolerance mm : + 0.25

Rated speed rpm : 807

guide sleeve

travel mm : 10.00

Tolerance mm : + 0.25

Rated speed rpm : 860

guide sleeve

travel mm : 11.50

Tolerance mm : + 0.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 279.5

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Spread

##### CONTROL LEVER

control lever

position degree : 31.0

tolerance degree : + 4.0

control lever

position degree : 94.0

tolerance degree : + 4.0

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 760

rack travel mm : 12.90

Rated speed rpm : 788

Tolerance 1/min : + 5

rack travel mm : 4.00

rack travel mm : 0.50

Tolerance mm : + 0.50

Rated speed rpm : 820

Rated speed rpm : 761

rack travel mm : 12.90

Rated speed rpm : 789

Tolerance 1/min : + 5

rack travel mm : 4.00

rack travel mm : 0.50

Tolerance mm : + 0.50

Rated speed rpm : 820

Rated speed rpm : 762

rack travel mm : 12.90

Rated speed rpm : 790

Tolerance 1/min : + 5

rack travel mm : 4.00

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 820

Rated speed rpm : 763  
rack travel mm : 12.90

Rated speed rpm : 791  
Tolerance 1/min :  $\pm$  5  
rack travel mm : 4.00

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 820

Rated speed rpm : 764  
rack travel mm : 12.90

Rated speed rpm : 792  
Tolerance 1/min :  $\pm$  5  
rack travel mm : 4.00

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 820

Rated speed rpm : 765  
rack travel mm : 12.90

Rated speed rpm : 793  
Tolerance 1/min :  $\pm$  5  
rack travel mm : 4.00

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 820

---

#### LOW IDLE

control lever  
position degree : 69.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 6.40  
Tolerance mm :  $\pm$  0.10

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 13.85  
Tolerance mm :  $\pm$  0.05

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 19.00  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 260.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0

---

#### LOW IDLE

Rated speed rpm : 300  
  
Rack travel in mm : 6.40  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 41.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 11.11.93

Test oil : ISO 4113

Combination No. : 0 402 746 901

## Injection pump

Pump designation : PES6P120A720RS7224

EP type number : 0 412 726 840

## Governor

Governor design. : RQV275...1100PA975K

Governor no. : 0 421 815 266

Cust. part No. :

## Customer-spec. information

Customer : IVECO-UNIC

Motor : 8460.41.406

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

## Overflow quantity

min. l/h : 140

Tolerance l/h : ± 20.0

## Test nozzle holde assembly

: 1 688 901 105

## Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.15

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.30

## Check

tolerance \*NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.75

Tolerance mm : ± 0.05

Rated speed rpm : 275

Rack travel in mm : 5.20

Tolerance mm : ± 0.10

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 26.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000s. : ± 6.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000s. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
 position degree : - 1  
 Rated speed rpm : 1140  
 Rack travel in mm : 16.50  
 Tolerance mm : ± 1.30

##### CONTROL LEVER

control lever  
 position degree : 119.0  
 tolerance degree : ± 4.0

RATED SPEED  
 rack travel mm : 11.70  
 Rated speed rpm : 1145  
 Tolerance 1/min : ± 5

rack travel mm : 4.00  
 Rated speed rpm : 1235  
 Tolerance 1/min : ± 15

rack travel mm : 0.50  
 Tolerance mm : ± 0.50  
 Rated speed rpm : 1350

##### LOW IDLE

control lever  
 position degree : 69.0  
 tolerance degree : ± 4.0

Setting point w/out bumper spring

D21

Rated speed rpm : 100  
 CRT mm min. : > 6.70

##### Testing:

Rated speed rpm : 275  
 rack travel mm : 5.20  
 Tolerance mm : ± 0.10

Rated speed rpm : 335

##### TORQUE CONTROL

Rated speed rpm : 1100  
 rack travel mm : 12.75  
 Tolerance mm : ± 0.05

Rated speed rpm : 900  
 rack travel mm : 12.70  
 Tolerance mm : ± 0.10

Rated speed rpm : 500  
 rack travel mm : 11.60  
 Tolerance mm : ± 0.10

Rated speed rpm : 700  
 rack travel mm : 12.10  
 Tolerance mm : ± 0.10

Rated speed rpm : 350  
 rack travel mm : 11.20  
 Tolerance mm : ± 0.20

##### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 900  
 Pressure hPa : 1200  
 rack travel mm : 12.75  
 Tolerance mm : ± 0.05

Rated speed rpm : 900  
 Pressure hPa : -  
 rack travel mm : 7.50  
 Tolerance mm : ± 0.10

##### MEASUREMENT

Rated speed rpm : 900  
 Pressure hPa : 410  
 rack travel mm : 8.80  
 Tolerance mm : ± 0.20

Pressure hPa : 750  
rack travel mm : 11.35  
Tolerance mm :  $\pm$  0.05

---

#### Start interlock

Rated speed rpm : > 170  
Rated speed rpm : < 220

Check  
speed 1/min : > 150  
Check  
speed 1/min : < 240

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 500  
rack travel mm : 11.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 243.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 140.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 275  
Rack travel in mm : 5.20  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.09.93  
Test oil : ISO 4113  
  
Combination No. : 0 402 746 939  
  
Injection pump  
Pump designation : PES6P130A32ORS7271  
EP type number : 0 412 736 804  
  
Governor  
Governor design. : RQV450...1500PA1049  
Governor no. : 0 421 814 032

Cust. part No. :

Customer-spec. information  
Customer : SEATEK  
Motor : 64/V9

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 450

Rack travel in mm : 3.00  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever  
position degree : 104  
Rated speed rpm : 1575  
  
Rack travel in mm : 9.40  
Tolerance mm : + 1.30

CONTROL LEVER

control lever  
position degree : 106.0  
tolerance degree : + 4.0

RATED SPEED  
rack travel mm : 9.40  
Rated speed rpm : 1545  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1645  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1750

LOW IDLE

control lever  
position degree : 68.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 6.20

Testing:

D24

Rated speed rpm : 450  
rack travel mm : 3.00  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 480  
Tolerance 1/min : + 20

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 10.45  
Tolerance mm : + 0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 6.40  
Tolerance mm : + 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 185  
rack travel mm : 7.40  
Tolerance mm : + 0.20

Pressure hPa : 300  
rack travel mm : 9.45  
Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 140.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

---

LOW IDLE

Rated speed rpm : 450  
Rack travel in mm : 3.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 07.12.94  
Test oil : ISO 4113

Combination No. : 0 402 746 949A

Injection pump  
Pump designation : PES6P120A720RS7224  
: -2  
EP type number : 0 412 726 893

Governor  
Governor design. : RQV275...1100PA975  
: -3K  
Governor no. : 0 421 815 350

Cust. part No. :

Customer spec. information  
Customer : IVECO-FRANCE  
Motor : 8460.41.406  
Power KW : 253.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : + 0.1

Overflow quantity  
min. l/h : 140  
Tolerance l/h : + 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5

Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0

Prestroke mm : 5.15  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10

Rack travel in mm : 10.50  
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Start of delivery mark

Check  
tolerance °NW : + 0.40

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.75  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 195.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 5.50

Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1155

guide sleeve  
travel mm : 10.55

Tolerance mm : + 0.15

Rated speed rpm : 275

guide sleeve  
travel mm : 2.00

Tolerance mm : + 0.20

Rated speed rpm : 764

guide sleeve  
travel mm : 6.24

Tolerance mm : + 0.25

Rated speed rpm : 430

guide sleeve  
travel mm : 3.63

Tolerance mm : + 0.25

Rated speed rpm : 1350

guide sleeve  
travel mm : 13.50

Tolerance mm : + 0.50

##### GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1225

Rack travel in mm : 10.00

Tolerance mm : + 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 195.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever

position degree : 119.0

tolerance degree : + 4.0

##### RATED SPEED

rack travel mm : 10.70

Rated speed rpm : 1145

Tolerance 1/min : + 5

rack travel mm : 4.00

Rated speed rpm : 1215

Tolerance 1/min : + 15

rack travel mm : 0.50

Tolerance mm : + 0.50

Rated speed rpm : 1350

---

## LOW IDLE

control lever  
position degree : 66.0  
tolerance degree :  $\pm$  4.0

## Setting point w/out bumper spring

Rated speed rpm : 100  
CRT mm min. :  $>$  6.70

## Testing:

Rated speed rpm : 275  
rack travel mm : 5.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300

---

## TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 10.95  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 350  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.20

---

## ANEROID/ALTITUDE COMPENSATOR TEST

## SETTING

Rated speed rpm : 1100  
Pressure hPa : 1200  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1100  
Pressure hPa : -  
rack travel mm : 7.60  
Tolerance mm :  $\pm$  0.10

## MEASUREMENT

Rated speed rpm : 1100

Pressure hPa : 360  
rack travel mm : 8.70  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 600  
rack travel mm : 10.85  
Tolerance mm :  $\pm$  0.05

---

## Start interlock

Rated speed rpm :  $>$  170  
Rated speed rpm :  $<$  220

Check  
speed 1/min :  $>$  150  
Check  
speed 1/min :  $<$  240

---

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 500  
rack travel mm : 10.95  
Tolerance mm :  $\pm$  0.15  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 220.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

## STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 140.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : 5.50

Tolerance mm :  $\pm$  0.10

Del. quantity

cm<sup>3</sup>/1000 strokes : 26.0

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance

cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 29.11.94  
Test oil : ISO 4113

Combination No. : 0 402 746 950A

Injection pump  
Pump designation : PES6P120A720RS7224  
: -2

EP type number :

Governor  
Governor design. : RQV275...1100PA975  
: -4K

Governor no. :

Cust. part No. :

Customer-spec. information  
Customer : IVECO-FRANCE  
Motor : 8460.41.320

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 140  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

E02

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.15  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Start of delivery mark

Check  
tolerance °NW : ± 0.40

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 10.65  
Tolerance mm : ± 0.05



Del. quantity  
cm<sup>3</sup>/1000 strokes : 168.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 5.30  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 35.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1145  
guide sleeve

travel mm : 10.40  
Tolerance mm : ± 0.15

Rated speed rpm : 275

guide sleeve  
travel mm : 1.90

Tolerance mm : ± 0.20

Rated speed rpm : 750

guide sleeve  
travel mm : 6.10

Tolerance mm : ± 0.25

Rated speed rpm : 430

guide sleeve  
travel mm : 3.60

Tolerance mm : ± 0.25

Rated speed rpm : 1360

guide sleeve  
travel mm : 13.50

Tolerance mm : ± 0.50

##### GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1235

Rack travel in mm : 10.30

Tolerance mm : ± 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 168.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever

position degree : 120.0

tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 10.30

Rated speed rpm : 1170

Tolerance 1/min : ± 5

Check

speed 1/min : ± 10

rack travel mm : 4.00

Rated speed rpm : 1235

Tolerance 1/min : ± 15

Check

speed 1/min : ± 20

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 1350

---

#### LOW IDLE

control lever  
position degree : 76.0  
tolerance degree :  $\pm$  4.0

#### Setting point w/out bumper spring

Rated speed rpm : 100  
CRT mm min. :  $>$  6.80

#### Testing:

Rated speed rpm : 275  
rack travel mm : 5.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 335

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 10.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 9.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 900  
rack travel mm : 10.20  
Tolerance mm :  $\pm$  0.15

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1100  
Pressure hPa : 1200  
rack travel mm : 10.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1100  
Pressure hPa : -  
rack travel mm : 7.80  
Tolerance mm :  $\pm$  0.10

#### MEASUREMENT

Rated speed rpm : 1100

Pressure hPa : 420  
rack travel mm : 8.40  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 600  
rack travel mm : 10.05  
Tolerance mm :  $\pm$  0.05

---

#### Start interlock

Rated speed rpm :  $>$  170  
Rated speed rpm :  $<$  220

Check  
speed 1/min :  $>$  150  
Check  
speed 1/min :  $<$  240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 163.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

rack travel mm : 10.20  
Tolerance mm :  $\pm$  0.15

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 118.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : 5.30  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 35.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 06.03.98  
Test oil : ISO 4113  
  
Combination No. : 0 402 746 951  
  
Injection pump  
Pump designation : PES6P120A720RS7292  
: -1  
EP type number : 0 412 726 939  
  
Governor  
Governor design. : RQV350...1150PA1074K  
Governor no. : 0 421 815 355

Cust. part No. : 0240747902

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM366LA  
Power KW : 127.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Tolerance l/h : ± 20.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 3.30  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1150

---

Rack travel in mm : 14.20  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 271.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Rated speed rpm : 350

Rack travel in mm : 6.00  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1205  
guide sleeve  
travel mm : 9.35  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.53  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 855  
guide sleeve  
travel mm : 5.56

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 550  
guide sleeve  
travel mm : 3.17  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1480  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1329

Rack travel in mm : 13.00  
Tolerance mm :  $\pm$  1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 271.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

##### CONTROL LEVER

control lever  
position degree : 109.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 13.20  
Rated speed rpm : 1195  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1320  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.70  
Tolerance mm :  $\pm$  0.70

Rated speed rpm : 1400

---

#### LOW IDLE

control lever  
position degree : 65.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 250

CRT mm min. :  $>$  6.88

Testing:

Rated speed rpm : 350  
rack travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400

---

#### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 14.20  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 950  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 750  
rack travel mm : 13.20  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1150  
Pressure hPa : 1500  
rack travel mm : 14.20  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1150  
Pressure hPa : -  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.15

##### MEASUREMENT

Rated speed rpm : 1150

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Pressure hPa : 850  
rack travel mm : 13.60  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 350  
rack travel mm : 11.70  
Tolerance mm :  $\pm$  0.15

---

#### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  280

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  290

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
rack travel mm : 13.20  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 262.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 162.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100

rack travel mm : 13.70  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 158.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  19.0

---

LOW IDLE

Rated speed rpm : 350  
  
Rack travel in mm : 6.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 23.11.95  
Test oil : ISO 4113  
Combination No. : 0 403 476 096  
Injection pump  
Pump designation : PES6MW100/320RS1132  
EP type number : 0 413 406 124  
Governor  
Governor design. : RSV650...750MW4A311  
: -4  
Governor no. : 0 420 085 161  
Cust. part No. :

Customer-spec. information  
Customer : PENTA  
Motor : TD 61 AG  
Power KW : 93.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 457 413 010  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

E10

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.95  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.55  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 122.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0



Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.0

---

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

Rated speed rpm : 650

Rack travel in mm : 6.20  
Tolerance mm : +- 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.5

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : +- 0.35

governor spring  
pre-tension  
click setting x : 4.00

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 122.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

CONTROL LEVER

control lever  
position degree : 87.0  
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 11.50  
Rated speed rpm : 751  
Tolerance 1/min : +- 3

rack travel mm : 4.00  
Rated speed rpm : 781  
Tolerance 1/min : +- 8

rack travel mm : 1.00  
Tolerance mm : +- 0.70  
Rated speed rpm : 950

rack travel mm : 4.00  
Rated speed rpm : 813  
Tolerance 1/min : +- 8

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 748  
rack travel mm : 10.80

Rated speed rpm : 778  
Tolerance 1/min : +- 5  
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm : +- 0.70  
Rated speed rpm : 950

Rated speed rpm : 749  
rack travel mm : 10.80

Rated speed rpm : 779  
Tolerance 1/min : +- 5  
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm : +- 0.70  
Rated speed rpm : 950

Rated speed rpm : 750

rack travel mm : 10.80  
Rated speed rpm : 780  
Tolerance 1/min :  $\pm$  5  
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 950

Rated speed rpm : 751  
rack travel mm : 10.80

Rated speed rpm : 781  
Tolerance 1/min :  $\pm$  5  
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 950

Rated speed rpm : 752  
rack travel mm : 10.80

Rated speed rpm : 782  
Tolerance 1/min :  $\pm$  5  
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 950

Rated speed rpm : 753  
rack travel mm : 10.80

Rated speed rpm : 783  
Tolerance 1/min :  $\pm$  5  
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 950

---

#### LOW IDLE

control lever  
position degree : 82.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 650  
rack travel mm : 5.70  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 100  
CRT mm min. :  $>$  19.00

#### Testing:

Rated speed rpm : 650  
rack travel mm : 6.20  
Tolerance mm :  $\pm$  0.20

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 12.55  
Tolerance mm :  $\pm$  0.05

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 140.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  13.0

---

#### LOW IDLE

Rated speed rpm : 650  
Rack travel in mm : 6.20  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 07.01.92  
Test oil : ISO 4113  
Combination No. : 0 403 476 099  
Injection pump  
Pump designation : PES6MW100/320RS1209  
EP type number : 0 413 406 200  
Governor  
Governor design. : RSV300...750MW1A802  
Governor no. : 0 420 085 113

Cust. part No. : 3-7111

Customer spec. information  
Customer : MAN  
Motor : D0826LE20  
Power KW : 116.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 1 681 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Del. quantity  
cm<sup>3</sup>/1000 strokes : 144.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance cm <sup>3</sup> /1000S.	:	6.0
--	---	-----

Rated speed rpm	:	300
-----------------	---	-----

Rack travel in mm	:	7.00
-------------------	---	------

Tolerance mm	:	+ 0.40
--------------	---	--------

Del. quantity cm <sup>3</sup> /1000 strokes	:	36.0
--	---	------

Tolerance cm <sup>3</sup> /1000 strokes	:	+ 2.0
--	---	-------

Check tolerance cm <sup>3</sup> /1000S.	:	+ 4.5
--	---	-------

Spread Tolerance	:	
---------------------	---	--

cm <sup>3</sup> /1000 strokes	:	6.0
-------------------------------	---	-----

Check tolerance cm <sup>3</sup> /1000S.	:	9.0
--	---	-----

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever position degree	:	- 3
Rated speed rpm	:	800

Rack travel in mm	:	0.65
Tolerance mm	:	+ 0.35

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	700
Aneroid pressure hPa	:	-

Del. quantity cm <sup>3</sup> /1000 strokes	:	144.0
--	---	-------

Tolerance cm <sup>3</sup> /1000 strokes	:	+ 1.0
--	---	-------

Check tolerance cm <sup>3</sup> /1000S.	:	+ 3.0
--	---	-------

Spread Tolerance	:	
---------------------	---	--

cm <sup>3</sup> /1000 strokes	:	3.5
-------------------------------	---	-----

Check tolerance cm <sup>3</sup> /1000S.	:	6.0
--	---	-----

#### CONTROL LEVER

control lever position degree	:	88.0
tolerance degree	:	+ 4.0

RATED SPEED rack travel mm	:	13.50
Rated speed rpm	:	750

rack travel mm	:	4.00
Rated speed rpm	:	801
Tolerance 1/min	:	+ 4

rack travel mm	:	1.00
Tolerance mm	:	+ 0.70
Rated speed rpm	:	950

#### ASSEMBLY GOVERNOR SETTING

Rated speed rpm	:	750
rack travel mm	:	13.50

Rated speed rpm	:	801
Tolerance 1/min	:	+ 4
rack travel mm	:	4.00

rack travel mm	:	1.00
Tolerance mm	:	+ 0.70
Rated speed rpm	:	950

Rated speed rpm	:	751
rack travel mm	:	13.50

Rated speed rpm	:	802
Tolerance 1/min	:	+ 4
rack travel mm	:	4.00

rack travel mm	:	1.00
Tolerance mm	:	+ 0.70
Rated speed rpm	:	950

Rated speed rpm	:	752
rack travel mm	:	13.50

Rated speed rpm	:	803
Tolerance 1/min	:	+ 4
rack travel mm	:	4.00

rack travel mm	:	1.00
Tolerance mm	:	+ 0.70
Rated speed rpm	:	950

Rated speed rpm	:	753
rack travel mm	:	13.50

Rated speed rpm	:	804
Tolerance 1/min	:	+ 4

rack travel mm : 4.00  
rack travel mm : 1.00  
Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 950

Rated speed rpm : 754  
rack travel mm : 13.50

Rated speed rpm : 805  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 950

Rated speed rpm : 755  
rack travel mm : 13.50

Rated speed rpm : 806  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 950

---

#### LOW IDLE

control lever  
position degree : 68.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 7.00  
Tolerance mm :  $\pm$  0.40

rack travel mm : 2.00  
Rated speed rpm : 340  
Tolerance 1/min :  $\pm$  30

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 140.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  13.0

---

#### LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 7.00  
Tolerance mm :  $\pm$  0.40  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 36.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.06.94  
Test oil : ISO 4113  
  
Combination No. : 0 403 476 099A  
  
Injection pump  
Pump designation : PES6MW100/320RS1209  
EP type number : 0 413 406 200  
  
Governor  
Governor design. : RSV300...900MW1A802  
Governor no. : 0 420 085 113

Cust. part No. : 3-7112

Customer spec. information  
Customer : MAN  
Motor : D0826LE20  
Power KW : 141.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 1 681 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

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## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 15.00  
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 14.85  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 149.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

Rated speed rpm : 300  
Rack travel in mm : 7.00  
Tolerance mm : + 0.40  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 36.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800  
Rack travel in mm : 0.65  
Tolerance mm : + 0.35  
governor spring  
pre-tension  
click setting x : 2.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 149.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

CONTROL LEVER

control lever  
position degree : 92.0  
tolerance degree : + 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 900  
rack travel mm : 13.80  
Rated speed rpm : 936  
Tolerance 1/min : + 4  
rack travel mm : 4.00  
rack travel mm : 1.00  
Tolerance mm : + 0.70  
Rated speed rpm : 1050

Rated speed rpm : 901  
rack travel mm : 13.80

Rated speed rpm : 937  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm : + 0.70  
Rated speed rpm : 1050

Rated speed rpm : 902  
rack travel mm : 13.80

Rated speed rpm : 938  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm : + 0.70  
Rated speed rpm : 1050

Rated speed rpm : 903  
rack travel mm : 13.80

Rated speed rpm : 939  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm : + 0.70  
Rated speed rpm : 1050

Rated speed rpm : 904

rack travel mm : 13.80  
Rated speed rpm : 940  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1050

Rated speed rpm : 905  
rack travel mm : 13.80

Rated speed rpm : 941  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1050

---

#### LOW IDLE

control lever  
position degree : 68.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 100

#### Testing:

Rated speed rpm : 300  
rack travel mm : 7.00  
Tolerance mm :  $\pm$  0.40

rack travel mm : 2.00  
Rated speed rpm : 340  
Tolerance 1/min :  $\pm$  30

---

#### TORQUE CONTROL

Rated speed rpm : 850  
rack travel mm : 14.85  
Tolerance mm :  $\pm$  0.05

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 140.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  13.0

---

#### LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 7.00  
Tolerance mm :  $\pm$  0.40  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 36.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.03.98  
Test oil : ISO 4113  
  
Combination No. : 0 403 476 134  
  
Injection pump  
Pump designation : PES6MW100/32ORS1236  
EP type number : 0 413 406 231  
  
Governor  
Governor design. : RSV325...750MW1A802  
: -3  
Governor no. : 0 420 085 237  
  
Cust. part No. : 3-7231

Customer spec. information  
Customer : MAN  
Motor : D0826LXE20  
Power kW : 151.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
  
Overflow valve : 1 419 992 198  
  
Inlet press. bar : 1.5  
  
Test nozzle holder  
assembly : 1 681 901 101  
  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5  
  
Test lines : 1 680 750 008  
  
Outside diameter : 6.0  
  
x inside diameter : 2.0

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x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : + 1.0  
  
Prestroke mm : 3.25  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10  
  
Rack travel in mm : 15.00  
Tolerance mm : + 1.00  
  
Firing order : 1- 5- 3- 6- 2-  
: 4  
  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75

## BASIC SETTING

Rated speed rpm : 700  
  
Rack travel in mm : 13.70  
Tolerance mm : + 0.10  
  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 192.0  
  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
  
Speed  
  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance cm <sup>3</sup> /1000S.	:	7.5
--	---	-----

Rated speed rpm	:	325
-----------------	---	-----

Rack travel in mm	:	7.00
Tolerance mm	:	+ 0.40
Del. quantity cm <sup>3</sup> /1000 strokes	:	65.0
Tolerance cm <sup>3</sup> /1000 strokes	:	+ 2.0
Check tolerance cm <sup>3</sup> /1000S.	:	+ 4.5
Speed Tolerance cm <sup>3</sup> /1000 strokes	:	6.0
Check tolerance cm <sup>3</sup> /1000S.	:	9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever position degree	:	- 3
Rated speed rpm	:	800
Rack travel in mm	:	0.65
Tolerance mm	:	+ 0.35
governor spring pre-tension click setting x	:	4.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	700
Aneroid pressure hPa	:	-
Del. quantity cm <sup>3</sup> /1000 strokes	:	192.0
Tolerance cm <sup>3</sup> /1000 strokes	:	+ 1.0
Check tolerance cm <sup>3</sup> /1000S.	:	+ 4.0
Speed Tolerance cm <sup>3</sup> /1000 strokes	:	4.0
Check tolerance cm <sup>3</sup> /1000S.	:	7.5

##### CONTROL LEVER

control lever position degree	:	88.0
tolerance degree	:	+ 4.0

##### RATED SPEED

rack travel mm	:	4.00
Rated speed rpm	:	784

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm	:	750
rack travel mm	:	12.70

Rated speed rpm	:	784
Tolerance 1/min	:	+ 4
rack travel mm	:	4.00

rack travel mm	:	1.00
Tolerance mm	:	+ 0.70
Rated speed rpm	:	950

Rated speed rpm	:	751
rack travel mm	:	12.70

Rated speed rpm	:	785
Tolerance 1/min	:	+ 4
rack travel mm	:	4.00

rack travel mm	:	1.00
Tolerance mm	:	+ 0.70
Rated speed rpm	:	950

Rated speed rpm	:	752
rack travel mm	:	12.70

Rated speed rpm	:	786
Tolerance 1/min	:	+ 4
rack travel mm	:	4.00

rack travel mm	:	1.00
Tolerance mm	:	+ 0.70
Rated speed rpm	:	950

Rated speed rpm	:	753
rack travel mm	:	12.70

Rated speed rpm	:	787
Tolerance 1/min	:	+ 4
rack travel mm	:	4.00

rack travel mm	:	1.00
Tolerance mm	:	+ 0.70

Rated speed rpm : 950

Rated speed rpm : 754  
rack travel mm : 12.70

Rated speed rpm : 788  
Tolerance 1/min :  $\pm 4$   
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm :  $\pm 0.70$   
Rated speed rpm : 950

Rated speed rpm : 755  
rack travel mm : 12.70

Rated speed rpm : 789  
Tolerance 1/min :  $\pm 4$   
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm :  $\pm 0.70$   
Rated speed rpm : 950

---

#### LOW IDLE

control lever  
position degree : 68.0  
tolerance degree :  $\pm 4.0$

#### Testing:

Rated speed rpm : 325  
rack travel mm : 7.00  
Tolerance mm :  $\pm 0.40$

rack travel mm : 2.00  
Rated speed rpm : 340  
Tolerance 1/min :  $\pm 30$

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 13.70  
Tolerance mm :  $\pm 0.10$

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 215.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 10.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 13.0$

---

#### LOW IDLE

Rated speed rpm : 325  
Rack travel in mm : 7.00  
Tolerance mm :  $\pm 0.40$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 65.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 2.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.5$   
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.03.98  
Test oil : ISO 4113  
Combination No. : 9 400 087 498  
Injection pump  
Pump designation : PES6P120A120RS3344  
EP type number : 9 400 087 090  
Governor  
Governor design. : RGV350...11COPA1216  
Governor no. : 9 420 080 380

Cust. part No. : 3355978

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 CTAA - 250  
Power KW : 184.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 076

Inlet press. bar : 3.0

Test nozzle holder  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.15  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 15.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 7.50  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.23

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 14.55  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 184.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000s. : ± 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

Rated speed rpm : 325

Rack travel in mm : 6.40

Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 44.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000s. : ± 6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1177  
guide sleeve

travel mm : 8.60

Tolerance mm : ± 0.10

Rated speed rpm : 325

guide sleeve

travel mm : 1.30

Tolerance mm : ± 0.25

Rated speed rpm : 860

guide sleeve

travel mm : 6.35

Tolerance mm : ± 0.25

Rated speed rpm : 1470

guide sleeve

travel mm : 11.50

Tolerance mm : ± 0.25

##### GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1150

Rack travel in mm : 16.50

Tolerance mm : ± 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure

hPa : 1000

Del. quantity

cm<sup>3</sup>/1000 strokes : 184.5

Tolerance

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance

cm<sup>3</sup>/1000s. : ± 4.0

Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance

cm<sup>3</sup>/1000s. : 9.0

##### CONTROL LEVER

control lever

position degree : 118.0

tolerance degree : ± 6.0

##### RATED SPEED

rack travel mm : 13.50

Rated speed rpm : 1155

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1335

Tolerance 1/min : ± 15

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 1450

##### LOW IDLE

control lever

position degree : 68.0

tolerance degree :  $\pm$  6.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. :  $>$  9.50

#### Testing:

Rated speed rpm : 325  
rack travel mm : 6.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 14.55  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 14.55  
Tolerance mm :  $\pm$  0.05

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 14.55  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -

#### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 680  
rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 530  
rack travel mm : 0.30  
Tolerance mm :  $\pm$  0.10

#### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  245

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  265

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 184.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 144.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 190.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

#### LOW IDLE

Rated speed rpm : 325  
Rack travel in mm : 6.40  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 44.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.03.98  
Test oil : ISO 4113

Combination No. : 9 400 087 503

Injection pump  
Pump designation : PES5P120A720LS7453  
EP type number : F 000 400 203

Governor  
Governor design. : RQV300...950PA1263  
Governor no. : 9 420 080 392

Cust. part No. : 0270740102

Customer spec. information  
Customer : MBB  
Motor : OM 449 LA-EUROII  
Power kW : 205.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.3

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.70  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 21.00

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 13.55  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 247.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000s. : ± 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0



Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 300

Rack travel in mm : 6.20  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 700  
guide sleeve  
travel mm : 5.45  
Tolerance mm : ± 0.25

Rated speed rpm : 1050  
guide sleeve  
travel mm : 7.80  
Tolerance mm : ± 0.10

Rated speed rpm : 300  
guide sleeve  
travel mm : 0.75  
Tolerance mm : ± 0.25

Rated speed rpm : 500  
guide sleeve  
travel mm : 3.55  
Tolerance mm : ± 0.25

Rated speed rpm : 1165  
guide sleeve  
travel mm : 9.45  
Tolerance mm : ± 0.25

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1120

Rack travel in mm : 16.50  
Tolerance mm : ± 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 950  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 247.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

CONTROL LEVER

control lever  
position degree : 118.0  
tolerance degree : ± 6.0

RATED SPEED  
rack travel mm : 12.60  
Rated speed rpm : 1030  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1130  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1220

---

LOW IDLE

control lever  
position degree : 80.0  
tolerance degree : ± 6.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 9.80

Testing:

Rated speed rpm : 300  
 rack travel mm : 6.20  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400

#### TORQUE CONTROL

Rated speed rpm : 950  
 rack travel mm : 13.55  
 Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
 rack travel mm : 13.75  
 Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
 rack travel mm : 13.75  
 Tolerance mm :  $\pm$  0.05

Rated speed rpm : 900  
 rack travel mm : 13.65  
 Tolerance mm :  $\pm$  0.05

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
 Pressure hPa : 1200  
 rack travel mm : 13.80  
 Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
 Pressure hPa : -

##### MEASUREMENT

Rated speed rpm : 500  
 Pressure hPa : 400  
 rack travel mm : 0.85  
 Tolerance mm :  $\pm$  0.15

Pressure hPa : 750  
 rack travel mm : 2.20  
 Tolerance mm :  $\pm$  0.10

##### Start interlock

Rated speed rpm :  $>$  100  
 Rated speed rpm :  $<$  220

Check  
 speed 1/min :  $>$  80

Check  
 speed 1/min :  $<$  240

#### FUEL DELIVERY CHARACTERISTICS

##### Aneroid pressure

hPa : 1200  
 Rated speed rpm : 600  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 260.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
 Check tolerance  
 cm<sup>3</sup>/1000s. :  $\pm$  5.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000s. : 12.0

##### Aneroid pressure

hPa : 1200  
 Rated speed rpm : 800  
 rack travel mm : 13.75  
 Tolerance mm :  $\pm$  0.05  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 253.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
 Check tolerance  
 cm<sup>3</sup>/1000s. :  $\pm$  5.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000s. : 12.0

##### Aneroid pressure

hPa : -  
 Rated speed rpm : 500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 140.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
 Check tolerance  
 cm<sup>3</sup>/1000s. :  $\pm$  4.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0  
 Check tolerance  
 cm<sup>3</sup>/1000s. : 9.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 264.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

LOW IDLE

Rated speed rpm : 300  
  
Rack travel in mm : 6.20  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.03.98  
Test oil : ISO 4113

Combination No. : F 000 409 106

Injection pump  
Pump designation : PES6P120A120RS7416  
EP type number : 0 412 726 959

Governor  
Governor design. : RQV400...1250PA1378K  
Governor no. : F 000 420 503

Cust. part No. : 3933297

Customer spec. information  
Customer : CUMMINS  
Motor : 6BTA-A  
Power KW : 130.0

## TEST BENCH REQUIREMENTS

Inlet Line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

F02

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Start of delivery mark

\*NW after s.o.d. : 6.25  
Tolerance : ± 0.50  
Check  
tolerance \*NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.65  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 420

Rack travel in mm : 6.00  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1329  
guide sleeve  
travel mm : 7.83  
Tolerance mm : ± 0.15

Rated speed rpm : 400  
guide sleeve  
travel mm : 1.44  
Tolerance mm : ± 0.20

Rated speed rpm : 939  
guide sleeve  
travel mm : 5.18  
Tolerance mm : ± 0.25

Rated speed rpm : 640  
guide sleeve  
travel mm : 3.56

F03

Tolerance mm : ± 0.25

Rated speed rpm : 1690  
guide sleeve  
travel mm : 11.50  
Tolerance mm : ± 0.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : 800

Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### CONTROL LEVER

control lever  
position degree : 117.0  
tolerance degree : ± 6.0

##### RATED SPEED

rack travel mm : 12.60  
Rated speed rpm : 1325  
Tolerance 1/min : ± 15

rack travel mm : 4.00  
Rated speed rpm : 1480  
Tolerance 1/min : ± 5

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1550

##### LOW IDLE

control lever  
position degree : 71.0  
tolerance degree : ± 6.0

Control lever difference  
Grad : 46.0  
tolerance degree : ± 6.0

Setting point w/out bumper spring

Rated speed rpm : 300  
CRT mm min. : > 7.90

Testing:

Rated speed rpm : 420  
rack travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 13.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 11.60  
Tolerance mm :  $\pm$  0.20

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1250  
Pressure hPa : 800  
  
Rated speed rpm : 1250  
Pressure hPa : -  
rack travel mm : 9.40  
Tolerance mm :  $\pm$  0.20

MEASUREMENT

Rated speed rpm : 1250  
  
Pressure hPa : 340  
rack travel mm : 12.90  
Tolerance mm :  $\pm$  0.30  
  
Pressure hPa : 180  
rack travel mm : 10.40  
Tolerance mm :  $\pm$  0.20

Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 280

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 800  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 131.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

rack travel mm : 11.60  
Tolerance mm :  $\pm$  0.20

Aneroid pressure  
hPa : -  
Rated speed rpm : 1250  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 88.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100  
rack travel mm : 14.10  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

LOW IDLE

Rated speed rpm : 420

Rack travel in mm : 6.00  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.03.98

Test oil : ISO 4113

Combination No. : 0 400 464 105

## Injection pump

Pump designation : PES4A80D320/3RS1301

EP type number : 0 410 484 016

## Governor

Governor design. : RSV325...1500A2C505R

Governor no. : 0 420 233 187

Cust. part No. :

## Customer spec. information:

Customer : MWM

Motor : D226-4

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.0

## Test nozzle holde assembly

: 0 681 343 009

## Opening pressure bar

: 173.5

Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

F06

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 2.25

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

## Phasing

: 0-90-180-270

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## BASIC SETTING

## Del. quantity

cm<sup>3</sup>/1000 strokes : 48.5

## Tolerance

cm<sup>3</sup>/1000 strokes : ± 0.5

## Check tolerance

cm<sup>3</sup>/1000S. : ± 2.0

## Speed

## Tolerance

cm<sup>3</sup>/1000 strokes : 2.5

## Check tolerance

cm<sup>3</sup>/1000S. : 4.0

Rated speed rpm : 325



Rack travel in mm : 7.00  
 Tolerance mm : + 0.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 13.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.5  
 Spread  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 3.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
 position degree : - 3  
 Rated speed rpm : 800  
 Rack travel in mm : 0.65  
 Tolerance mm : + 0.35

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1480  
 Aneroid pressure  
 hPa : -  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 48.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 0.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 2.0  
 Spread  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 2.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 4.0

##### CONTROL LEVER

control lever  
 position degree : 55.0  
 tolerance degree : + 4.0

RATED SPEED  
 rack travel mm : 8.00  
 Rated speed rpm : 1525

F07

Tolerance 1/min : + 5  
 rack travel mm : 4.00  
 Rated speed rpm : 1560  
 Tolerance 1/min : + 15  
 rack travel mm : 1.00  
 Tolerance mm : + 0.70  
 Rated speed rpm : 1720  
 rack travel mm : 4.00  
 Rated speed rpm : 1570  
 Tolerance 1/min : + 15

##### LOW IDLE

control lever  
 position degree : 16.0  
 tolerance degree : + 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 325  
 rack travel mm : 7.50  
 Tolerance mm : + 0.10

##### Testing:

Rated speed rpm : 325  
 rack travel mm : 7.00  
 Tolerance mm : + 0.10

rack travel mm : 2.00  
 Rated speed rpm : 475  
 Tolerance 1/min : + 30

##### Start interlock

Rated speed rpm : > 100  
 Check  
 speed 1/min : > 80

##### STARTING FUEL DELIVERY

Rated speed rpm : 100  
 rack travel mm : 20.25  
 Tolerance mm : + 0.75  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 100.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 8.0

---

LOW IDLE

Rated speed rpm : 325  
Rack travel in mm : 7.00  
Tolerance mm : +- 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.5  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 23.03.98  
Test oil : ISO 4113  
Combination No. : 0 400 846 443  
Injection pump  
Pump designation : PES6A90D410RS2596  
EP type number : 0 410 896 073  
Governor  
Governor design. : RQV300...1400AB1066  
: -1DL  
Governor no. : 0 420 214 251  
Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM352A  
Power KW : 126.0

## TEST BENCH REQUIREMENTS

Inlet line : 1.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : + 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

F09

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0  
Prestroke mm : 2.05  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10  
Rack travel in mm : 10.50  
Tolerance mm : + 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75

## BASIC SETTING

Rated speed rpm : 1400  
Rack travel in mm : 12.45  
Tolerance mm : + 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 74.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 2.5  
Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 4.5

Rated speed rpm : 300

Rack travel in mm : 9.00

Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1500  
guide sleeve

travel mm : 8.55

Tolerance mm : ± 0.05

Rated speed rpm : 300

guide sleeve

travel mm : 1.05

Tolerance mm : ± 0.25

Rated speed rpm : 500

guide sleeve

travel mm : 2.55

Tolerance mm : ± 0.25

Rated speed rpm : 750

guide sleeve

travel mm : 4.20

Tolerance mm : ± 0.10

GUIDE SLEEVE POSITION

control lever  
position degree : - 1

Rated speed rpm : 1500

Rack travel in mm : 16.50

F10

Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400

Aneroid pressure

hPa : 700

Del. quantity  
cm<sup>3</sup>/1000 strokes : 74.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 4.5

CONTROL LEVER

control lever

position degree : 114.0

tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 11.40

Rated speed rpm : 1445

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1595

Tolerance 1/min : ± 15

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 1750

LOW IDLE

control lever

position degree : 76.0

tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 10.50

Testing:

Rated speed rpm : 300

rack travel mm : 9.00  
Tolerance mm :  $\pm$  0.10  
Rated speed rpm : 625

#### TORQUE CONTROL

Rated speed rpm : 1400  
rack travel mm : 12.45  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 13.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1000  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1200  
rack travel mm : 12.75  
Tolerance mm :  $\pm$  0.15

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 700  
rack travel mm : 13.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 12.35  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 225  
rack travel mm : 12.70  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 350  
rack travel mm : 13.25  
Tolerance mm :  $\pm$  0.05

##### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  220

Check  
speed 1/min :  $>$  80

F11

Check  
speed 1/min :  $<$  240

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 700  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.5

rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.10

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 56.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  3.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 15.60  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 78.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  8.0

#### LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 9.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 23.03.98  
Test oil : ISO 4113  
  
Combination No. : 0 402 066 716  
  
Injection pump  
Pump designation : PES6P110A12ORS3397..  
EP type number : 0 412 016 758  
  
Governor  
Governor design. : RSV500...1000P2A690.  
:  
Governor no. : 0 421 833 612  
  
Cust. part No. : 3930530

---

Customer-spec. information  
Customer : CDC  
Motor : 6CTAA  
Power KW : 151.0

---

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 2 417 413 093  
  
Inlet press. bar : 2.0  
Tolerance bar : ± 0.1  
  
Test nozzle holder  
assembly : 1 688 901 103  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 015

Outside diameter : 6.0  
x inside diameter : 3.0  
x length mm : 600

## REMARKS

---

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
  
Firing order : 1- 5- 3- 6- 2-  
: 4  
  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
  
Start of delivery blocking  
  
°NW after s.o.d. : 8.25  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
  
Barrel no. : 1  
  
Beginning of delivery difference  
and maximum rack  
travel : 15.00  
Difference °CS : 1.50

---

#### BASIC SETTING

Rated speed rpm : 1000

---

Rack travel in mm : 11.65  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 151.5

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Rated speed rpm : 500

Rack travel in mm : 4.85  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 27.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

F14

governor spring  
pre-tension  
click setting x : 3.50

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure

hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 151.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### CONTROL LEVER

control lever  
position degree : 95.0  
tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : 10.60

Rated speed rpm : 1075

Tolerance 1/min :  $\pm$  5

Check  
speed 1/min :  $\pm$  10

rack travel mm : 4.00

Rated speed rpm : 1150

Tolerance 1/min :  $\pm$  5

Check  
speed 1/min :  $\pm$  10

rack travel mm : 0.85

Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1275

rack travel mm : 4.00

Rated speed rpm : 1150

Tolerance 1/min :  $\pm$  15

Check  
speed 1/min :  $\pm$  20

---

#### LOW IDLE



control lever  
position degree : 78.0  
tolerance degree :  $\pm$  4.0

Control Lever difference  
Grad : 17.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 500  
rack travel mm : 4.35

Rated speed rpm : 100

CRT mm min. :  $>$  19.00

Testing:

Rated speed rpm : 500  
rack travel mm : 4.85  
Tolerance mm :  $\pm$  0.10

---

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 11.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 12.70  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 850  
rack travel mm : 12.55  
Tolerance mm :  $\pm$  0.20

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 950  
rack travel mm : 12.70  
Tolerance mm :  $\pm$  0.20

F15

Pressure hPa : 850  
rack travel mm : 12.30  
Tolerance mm :  $\pm$  0.20

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 184.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

---

rack travel mm : 12.55  
Tolerance mm :  $\pm$  0.20

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 164.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 21.00  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 157.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

#### LOW IDLE

Rated speed rpm : 500  
Rack travel in mm : 4.85  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 27.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.03.98  
Test oil : ISO 4113  
Combination No. : 0 402 746 643  
Injection pump  
Pump designation : PES6P120A320LS7362  
EP type number : 0 412 726 929  
Governor  
Governor design. : RGV350...11C0FA12C1K  
Governor no. : 0 421 815 456

Cust. part No. : 1824681C91

Customer spec. information  
Customer : NAVISTAR  
Motor : DTA-530  
Power KW : 245.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 076

Inlet press. bar : 2.8  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test U<sub>max</sub> : 1 680 750 008

Outside diameter : 6.0

F17

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.90  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 14.00  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 262.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Rated speed rpm : 350

Rack travel in mm : 5.90  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 24.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Spread  
Tolerance

cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance

cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Aneroid pressure  
hPa : 1700

Del. quantity  
cm<sup>3</sup>/1000 strokes : 262.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread  
Tolerance

cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance

cm<sup>3</sup>/1000S. : 12.0

---

##### CONTROL LEVER

control lever  
position degree : 121.0  
tolerance degree : ± 6.0

##### RATED SPEED

rack travel mm : 13.00

Rated speed rpm : 1065

Tolerance 1/min : ± 15

rack travel mm : 4.00  
Rated speed rpm : 1175  
Tolerance 1/min : ± 5

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1225

---

##### LOW IDLE

control lever  
position degree : 78.0  
tolerance degree : ± 6.0

Setting point w/out bumper spring

Rated speed rpm : 275

CRT mm min. : > 8.00

##### Testing:

Rated speed rpm : 350  
rack travel mm : 5.90  
Tolerance mm : ± 0.10

Rated speed rpm : 425

---

##### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 14.00  
Tolerance mm : ± 0.05

Rated speed rpm : 650  
rack travel mm : 13.10  
Tolerance mm : ± 0.10

Rated speed rpm : 750  
rack travel mm : 13.40  
Tolerance mm : ± 0.10

---

##### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1000  
Pressure hPa : 1700  
rack travel mm : 14.00  
Tolerance mm : ± 0.05

Rated speed rpm : 1000  
Pressure hPa : -

rack travel mm : 10.55  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 1000

Pressure hPa : 1130  
rack travel mm : 13.50  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 420  
rack travel mm : 11.55  
Tolerance mm :  $\pm$  0.05

#### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  230

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  290

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1700  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 238.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.70  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 168.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

#### LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 5.90  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 24.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.03.98  
Test oil : ISO 4113

Combination No. : 0 403 466 181

Injection pump  
Pump designation : PES6MW100/120RS1238  
EP type number : 0 413 406 237

Governor  
Governor design. : RSV500...1000MW0A409  
Governor no. : 0 420 085 300

Cust. part No. : 3930526

## Customer spec. information

Customer : CDC  
Motor : 6 CT  
Power KW : 133.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

F20

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.80  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

\*NW after s.o.d. : 7.50  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack  
travel : 15.00  
Difference ° CS : 2.00

---

### BASIC SETTING

Rated speed rpm : 1000

---

Rack travel in mm : 11.25

Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.5

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

Rated speed rpm : 500

Rack travel in mm : 5.50

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

#### GUIDE SLEEVE POSITION

control lever

position degree : - 3

Rated speed rpm : 800

Rack travel in mm : 0.50

Tolerance mm :  $\pm$  0.20

governor spring

pre-tension

click setting x : 4.00

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Aneroid pressure

hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

#### CONTROL LEVER

control lever

position degree : 100.0

tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : 10.25

Rated speed rpm : 1055

Tolerance 1/min :  $\pm$  5

Check  
speed 1/min :  $\pm$  15

rack travel mm : 4.00

Rated speed rpm : 1160

Tolerance 1/min :  $\pm$  5

Check  
speed 1/min :  $\pm$  10

rack travel mm : 1.00

Tolerance mm :  $\pm$  0.70

Rated speed rpm : 1250

rack travel mm : 4.00

Rated speed rpm : 1160

Tolerance 1/min :  $\pm$  15

Check  
speed 1/min :  $\pm$  20

---

#### LOW IDLE

control lever  
position degree : 83.0  
tolerance degree :  $\pm$  4.0

Control lever difference  
Grad : 17.0  
tolerance degree :  $\pm$  6.0

Setting point w/out bumper spring

Rated speed rpm : 500  
rack travel mm : 5.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. :  $>$  19.00

Testing:

Rated speed rpm : 500  
rack travel mm : 5.50  
Tolerance mm :  $\pm$  0.10

---

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 11.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 12.85  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 350  
rack travel mm : 12.75  
Tolerance mm :  $\pm$  0.20

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.95  
Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 880  
rack travel mm : 12.40

Tolerance mm :  $\pm$  0.20

Pressure hPa : 600  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.20

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 850  
rack travel mm : 12.75  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 122.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 177.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  13.0

---

#### LOW IDLE

Rated speed rpm : 500



Rack travel in mm : 5.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000s. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 27.02.98  
Test oil : ISO 4113  
  
Combination No. : G 401 806 045  
  
Injection pump  
Pump designation : PE6P120A300/3S131  
EP type number : 0 401 806 045  
  
Governor  
Governor design. :  
Governor no. :

Cust. part No. :

Customer-spec. information  
Customer : ALLGEMEIN

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 067

Outside diameter : 6.0

x inside diameter : 1.5  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 21.00  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.05  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 499.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

---

Rated speed rpm : 200  
Rack travel in mm : 5.40  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 27.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 499.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

---

LOW IDLE

Testing:

Rated speed rpm : 200  
rack travel mm : 5.40  
Tolerance mm :  $\pm$  0.10

---

TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 12.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1000  
rack travel mm : 21.00

---

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 895.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  13.0  
Speed  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

---

LOW IDLE

Rated speed rpm : 200  
Rack travel in mm : 5.40  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 27.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 07.12.93  
Test oil : ISO 4113  
Combination No. : 0 401 849 748  
Injection pump  
Pump designation : PE10P120A520/4LS3849  
EP type number : 0 411 829 708

Governor  
Governor design. : RQ750PA947  
Governor no. : 0 421 801 513

Cust. part No. : 2-7975

Customer-spec. information  
Customer : MAN  
Motor : D2840 LE  
Power KW : 352.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 10- 9- 4- 1- 8  
                  : - 7- 6- 3- 5  
                  : - 2

Phasing : 0-45-72-117-144  
          : -189-216-261-288  
          : -333  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 10

## BASIC SETTING

Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 758  
guide sleeve  
travel mm : 5.10  
Tolerance mm : +- 0.25

Rated speed rpm : 540  
guide sleeve  
travel mm : -4.66  
Tolerance mm : +- 0.25

Rated speed rpm : 880  
guide sleeve  
travel mm : 17.08  
Tolerance mm : +- 0.25

Rated speed rpm : 818  
guide sleeve  
travel mm : 10.00  
Tolerance mm : +- 0.25

Rated speed rpm : 880  
guide sleeve  
travel mm : 11.50  
Tolerance mm : +- 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

RATED SPEED

rack travel mm : 0.50  
Tolerance mm : +- 0.50  
Rated speed rpm : 950

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 750  
rack travel mm : 11.30

Rated speed rpm : 794  
Tolerance 1/min : +- 4  
rack travel mm : 4.00

rack travel mm : 0.50  
Tolerance mm : +- 0.50  
Rated speed rpm : 950

Rated speed rpm : 751  
rack travel mm : 11.30

Rated speed rpm : 795  
Tolerance 1/min : +- 4  
rack travel mm : 4.00

rack travel mm : 0.50  
Tolerance mm : +- 0.50  
Rated speed rpm : 950

Rated speed rpm : 752  
rack travel mm : 11.30

Rated speed rpm : 796  
Tolerance 1/min : +- 4  
rack travel mm : 4.00

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 950

Rated speed rpm : 753  
rack travel mm : 11.30

Rated speed rpm : 797  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 950

Rated speed rpm : 754  
rack travel mm : 11.30

Rated speed rpm : 798  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 950

Rated speed rpm : 755  
rack travel mm : 11.30

Rated speed rpm : 799  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 950

---

#### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 23.03.98  
Test oil : ISO 4113  
Combination No. : 0 401 856 701  
Injection pump  
Pump designation : PE6P110A721RS3101  
EP type number : 0 411 816 725  
Governor  
Governor design. : RGV25C/120DFA413  
Governor no. : 0 421 813 333

Cust. part No. :

Customer spec. information  
Customer : STEYR  
Motor : WD615.67  
Power KW : 206.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 025  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 089  
Outside diameter : 6.0

G01

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300

## BASIC SETTING

Rated speed rpm : 1200  
Rack travel in mm : 12.05  
Tolerance mm : ± 0.05  
Rated speed rpm : 250  
Rack travel in mm : 5.90  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

#### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1256  
guide sleeve  
travel mm : 7.59  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 250  
guide sleeve  
travel mm : 0.64  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1060  
guide sleeve  
travel mm : 6.07  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 564  
guide sleeve  
travel mm : 3.52  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 614  
guide sleeve  
travel mm : 3.90  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 740  
guide sleeve  
travel mm : 4.41  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1441  
guide sleeve  
travel mm : 10.00  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1560  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1390

Rack travel in mm : 16.50  
Tolerance mm :  $\pm$  1.30

---

#### CONTROL LEVER

control lever  
position degree : 45.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 11.00  
Rated speed rpm : 1245  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1350  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1450

---

#### LOW IDLE

control lever  
position degree : 13.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. :  $>$  7.50

Testing:

Rated speed rpm : 250  
rack travel mm : 5.90  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 390  
Tolerance 1/min :  $\pm$  30

---

#### TORQUE CONTROL

Rated speed rpm : 1200  
rack travel mm : 12.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 12.45  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 880  
rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.05



---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 700  
rack travel mm : 12.45  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.10  
Tolerance mm :  $\pm$  0.20

MEASUREMENT

Rated speed rpm : 500  
  
Pressure hPa : 330  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 420  
rack travel mm : 11.55  
Tolerance mm :  $\pm$  0.05

---

Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  170

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  190

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 700  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 167.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.05

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 122.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 17.50  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 220.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

LOW IDLE

Rated speed rpm : 250  
  
Rack travel in mm : 5.90  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 02.12.93

Test oil : ISO 4113

Combination No. : 0 401 876 791

## Injection pump

Pump designation : PE6P110A320LS3859

EP type number : 0 411 816 784

## Governor

Governor design. : RSV400...1000P1A554

Governor no. : 0 421 833 376

Cust. part No. : 9273092

## Customer-spec. information

Customer : LIEBHERR

Motor : D 9306 TI

Power KW : 200.0

## TEST BENCH REQUIREMENTS

Inlet Line : 3.1

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

## Test nozzle holder assembly

: 0 681 343 009

## Opening pressure

bar : 173.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

G04

x inside diameter : 3.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.65

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 6- 3- 5- 2-  
: 4

Phasing : 0-75-120-195-240

: -315

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 14.55

Tolerance mm : ± 0.05

Del. quantity

cm<sup>3</sup>/1000 strokes : 196.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.5

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

Rack travel in mm : 6.00

Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 14.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 5.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 196.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.5  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

##### CONTROL LEVER

control lever  
position degree : 99.0  
tolerance degree : ± 4.0

RATED SPEED  
rack travel mm : 13.50  
Rated speed rpm : 935  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1000  
Tolerance 1/min : ± 15

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1260

rack travel mm : 4.00  
Rated speed rpm : 1030  
Tolerance 1/min : ± 15

##### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 5.70  
Tolerance mm : ± 0.10

##### Testing:

Rated speed rpm : 400  
rack travel mm : 6.00  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 525  
Tolerance 1/min : ± 30

---

**TORQUE CONTROL**

Rated speed rpm : 900  
rack travel mm : 14.55  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 14.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 350  
rack travel mm : 15.60  
Tolerance mm :  $\pm$  0.30

---

**ANEROID/ALTITUDE  
COMPENSATOR TEST****SETTING**

Rated speed rpm : 550  
Pressure hPa : 1300  
rack travel mm : 14.55  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 550  
Pressure hPa : -  
rack travel mm : 13.75  
Tolerance mm :  $\pm$  0.10

**MEASUREMENT**

Rated speed rpm : 550  
  
Pressure hPa : 710  
rack travel mm : 14.05  
Tolerance mm :  $\pm$  0.05

---

**FUEL DELIVERY CHARACTERISTICS**

---

rack travel mm : 15.60  
Tolerance mm :  $\pm$  0.30

---

Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 178.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5

---

**STARTING FUEL DELIVERY**

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

**LOW IDLE**

Rack travel in mm : 6.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 14.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.07.93  
Test oil : ISO 4113  
Combination No. : 0 401 876 791B  
Injection pump  
Pump designation : PE6P110A32OLS3859  
EP type number : 0 411 816 784  
Governor  
Governor design. : RSV400...1000P1A554  
Governor no. : 0 421 833 376  
Cust. part No. : 9273092

Customer spec. information  
Customer : LIEBHERR  
Motor : D 9306 TI  
Power KW : 200.0

## TEST BENCH REQUIREMENTS

Inlet Line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 025  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 089  
Outside diameter : 8.0

607

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 6- 3- 5- 2-  
: 4  
Phasing : 0-75-120-195-240  
: -315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Start of delivery mark  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 900  
Rack travel in mm : 14.55  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 196.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 3.5

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

Rack travel in mm : 6.00

Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 14.5

Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : + 0.20

governor spring  
pre-tension  
click setting x : 5.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 196.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 3.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

##### CONTROL LEVER

control lever  
position degree : 99.0  
tolerance degree : + 4.0

RATED SPEED  
rack travel mm : 13.50  
Rated speed rpm : 935  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1000  
Tolerance 1/min : + 15

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1260

rack travel mm : 4.00  
Rated speed rpm : 1030  
Tolerance 1/min : + 15

##### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : + 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 5.70  
Tolerance mm : + 0.10

##### Testing:

Rated speed rpm : 400  
rack travel mm : 6.00  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 480  
Tolerance 1/min : + 30

---

**TORQUE CONTROL**

Rated speed rpm : 900  
rack travel mm : 14.55  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 14.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 350  
rack travel mm : 15.60  
Tolerance mm :  $\pm$  0.30

---

**ANEROID/ALTITUDE  
COMPENSATOR TEST****SETTING**

Rated speed rpm : 550  
Pressure hPa : 1300  
rack travel mm : 14.55  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 550  
Pressure hPa : -  
rack travel mm : 13.75  
Tolerance mm :  $\pm$  0.10

**MEASUREMENT**

Rated speed rpm : 550

Pressure hPa : 710  
rack travel mm : 14.05  
Tolerance mm :  $\pm$  0.05

---

**FUEL DELIVERY CHARACTERISTICS**

---

rack travel mm : 15.60  
Tolerance mm :  $\pm$  0.30

---

Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 178.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5

---

**STARTING FUEL DELIVERY**

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

**LOW IDLE**

Rack travel in mm : 6.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 14.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 02.11.93  
Test oil : ISO 4113  
Combination No. : 0 401 878 717B  
Injection pump  
Pump designation : PE8P110A320LS3853-1.  
EP type number : 0 411 818 726  
Governor  
Governor design. : RSV400...1000P1A554  
Governor no. : 0 421 833 376

Cust. part No. : 9273967

Customer-spec. information  
Customer : LIEBHERR  
Motor : D 9308 T  
Power KW : 255.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 1- 8- 7- 2- 6  
                  : - 3- 5- 4

Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.45  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 167.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000s. : ± 4.0

Speed



Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

Rack travel in mm : 6.00  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : + 0.20

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 167.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

##### CONTROL LEVER

control lever  
position degree : 100.0  
tolerance degree : + 4.0

RATED SPEED  
rack travel mm : 12.45  
Rated speed rpm : 945  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1000  
Tolerance 1/min : + 15

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1100

rack travel mm : 4.00  
Rated speed rpm : 1030  
Tolerance 1/min : + 15

##### LOW IDLE

control lever  
position degree : 79.0  
tolerance degree : + 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 5.70  
Tolerance mm : + 0.10

##### Testing:

Rated speed rpm : 400  
rack travel mm : 6.00  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 460  
Tolerance 1/min : + 30

##### TORQUE CONTROL

Rated speed rpm : 900  
rack travel mm : 13.45  
Tolerance mm : + 0.05

Rated speed rpm : 500  
rack travel mm : 13.50  
Tolerance mm : + 0.10

Rated speed rpm : 350  
rack travel mm : 14.90

Tolerance mm :  $\pm$  0.30

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 550  
Pressure hPa : 1500  
rack travel mm : 13.45  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 550  
Pressure hPa : -  
rack travel mm : 12.55  
Tolerance mm :  $\pm$  0.10

MEASUREMENT

Rated speed rpm : 550  
Pressure hPa : 620  
rack travel mm : 12.80  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 685  
rack travel mm : 13.20  
Tolerance mm :  $\pm$  0.05

---

FUEL DELIVERY CHARACTERISTICS

---

rack travel mm : 14.90  
Tolerance mm :  $\pm$  0.30

---

Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 153.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50

Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

LOW IDLE

Rack travel in mm : 6.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 23.03.98  
Test oil : ISO 4113  
  
Combination No. : 0 401 886 702  
  
Injection pump  
Pump designation : PE6P110A721RS3341  
EP type number : 0 411 816 796  
  
Governor  
Governor design. : RSV400...1200P1A527  
: -1  
Governor no. : 0 421 833 455  
  
Cust. part No. : 615.60.08.0039

Customer-spec. information  
Customer : SNF  
Motor : WD615.88  
Power KW : 228.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 457 413 012  
  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
  
Test nozzle holder  
assembly : 0 681 343 009  
  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 089

G13

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
  
Firing order : 1- 5- 3- 6- 2-  
: 4  
  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
  
Start of delivery mark  
  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
  
Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1200  
  
Rack travel in mm : 13.80  
Tolerance mm : ± 0.05  
  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 188.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spread

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

Rated speed rpm : 400

Rack travel in mm : 3.10

Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 14.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 5.5

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : + 0.20

governor spring  
pre-tension  
click setting x : 4.75

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200  
Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 188.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

##### CONTROL LEVER

control lever  
position degree : 116.0  
tolerance degree : + 4.0

##### RATED SPEED

rack travel mm : 12.80

Rated speed rpm : 1245

Tolerance 1/min : + 5

rack travel mm : 4.00

Rated speed rpm : 1300

Tolerance 1/min : + 15

rack travel mm : 0.85

Tolerance mm : + 0.55

Rated speed rpm : 1400

---

##### LOW IDLE

control lever  
position degree : 76.0  
tolerance degree : + 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 400

rack travel mm : 3.60

Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 9.50

##### Testing:

Rated speed rpm : 400

rack travel mm : 3.10

Tolerance mm : + 0.10

rack travel mm : 2.00

Rated speed rpm : 465  
Tolerance 1/min :  $\pm$  30

---

TORQUE CONTROL

Rated speed rpm : 1200  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.10  
Tolerance mm :  $\pm$  0.20

MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 360  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 600  
rack travel mm : 12.80  
Tolerance mm :  $\pm$  0.05

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 198.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : -

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 123.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 14.30  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 205.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0

---

LOW IDLE

Rated speed rpm : 400  
Rack travel in mm : 3.10  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 14.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 20.03.98  
Test oil : ISO 4113

Combination No. : 0 401 946 701

Injection pump  
Pump designation : PE6P120A320RS3240  
EP type number : 0 411 826 786

Governor  
Governor design. : RQV250...1025PA371  
Governor no. : 0 421 813 303

Cust. part No. : 8193548

Customer-spec. information  
Customer : VOLVO-TRUCK  
Motor : TD122FLs  
Power kW : 240.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration  
damper  
(RoBo diaphragm) : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 457 413 046

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## BASIC SETTING

Del. quantity  
cm3/1000 strokes : 252.0

Tolerance  
cm3/1000 strokes : ± 1.0

Check tolerance  
cm3/1000s. : ± 4.0

## Spread

Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm3/1000s. : 9.0

Rated speed rpm : 250

Rack travel in mm : 6.60  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1100

Rack travel in mm : 16.50  
Tolerance mm : + 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 252.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 65.0  
tolerance degree : + 4.0

control lever  
position degree : 120.0

G17

tolerance degree : + 4.0

RATED SPEED  
rack travel mm : 12.65  
Rated speed rpm : 1070  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1250

##### LOW IDLE

control lever  
position degree : 64.0  
tolerance degree : + 4.0

control lever  
position degree : 9.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

##### Testing:

Rated speed rpm : 250  
rack travel mm : 6.60  
Tolerance mm : + 0.10

Rated speed rpm : 315

##### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 13.65  
Tolerance mm : + 0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 9.70  
Tolerance mm : + 0.10

##### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 780  
rack travel mm : 3.30  
Tolerance mm :  $\pm$  0.10  
  
Pressure hPa : 90  
rack travel mm : 0.25  
Tolerance mm :  $\pm$  0.05

---

End of test specification sheet

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 290.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 250  
  
Rack travel in mm : 6.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.02.95  
Test oil : ISO 4113

Combination No. : 0 402 046 351

Injection pump  
Pump designation : PES6P120A320RS533  
EP type number : 0 412 026 062

Governor  
Governor design. : RQ275/1050PA1083  
Governor no. : 0 421 801 690

Cust. part No. : CCEP 5 138A 66-210

## Customer-spec. information

Customer : RVI  
Motor : M1HS062045 B  
Power KW : 186.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## CRT ZERO POSITION

Rack travel in mm : 10.95  
Tolerance mm : ± 0.05

---

**BASIC SETTING**

Rated speed rpm : 700

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

**Spread**

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 275

Rack travel in mm : -5.50  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

**Spread**

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

**(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR**

---

**GUIDE SLEEVE TRAVEL**

Rated speed rpm : 1116  
guide sleeve  
travel mm : 6.38  
Tolerance mm : ± 0.10

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.17  
Tolerance mm : ± 0.10

Rated speed rpm : 1050

guide sleeve  
travel mm : 6.00  
Tolerance mm : ± 0.20

Rated speed rpm : 480  
guide sleeve  
travel mm : 3.89  
Tolerance mm : ± 0.20

Rated speed rpm : 740  
guide sleeve  
travel mm : 6.00  
Tolerance mm : ± 0.20

Rated speed rpm : 1360  
guide sleeve  
travel mm : 11.50  
Tolerance mm : ± 0.50

---

**GUIDE SLEEVE POSITION**

control lever  
position degree : 109  
Rated speed rpm : 850

Rack travel in mm : 20.00  
Tolerance mm : ± 0.80

---

**FULL LOAD DELIVERY AT FULL LOAD STOP**

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

**Spread**

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

**RATED SPEED**  
rack travel mm : -1.00  
Rated speed rpm : 1120  
Tolerance 1/min : ± 8

rack travel mm : -6.90  
Rated speed rpm : 1230  
Tolerance 1/min : ± 15

rack travel mm : -10.45  
Tolerance mm : ± 0.55

Rated speed rpm : 1350

---

#### LOW IDLE

control lever  
position degree : 252.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. :  $<$  -4.70

#### Testing:

Rated speed rpm : 275  
rack travel mm : -5.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300

---

#### TORQUE CONTROL

Rated speed rpm : 700

Rated speed rpm : 1050  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1050  
rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.20

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : -1.20  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 180  
rack travel mm : -0.45  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 160  
rack travel mm : -0.85  
Tolerance mm :  $\pm$  0.05

---

#### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  195

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  215

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 156.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.20

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 103.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 275  
Rack travel in mm : -5.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm3/1000 strokes : 25.0  
Tolerance  
cm3/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm3/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.03.98  
Test oil : ISO 4113

Combination No. : 0 402 066 706

Injection pump  
Pump designation : PES6P120A120RS3358  
EP type number : 0 412 026 784

Governor  
Governor design. : RSV475...1250P2A613  
: -1  
Governor no. : 0 421 833 505

Cust. part No. : 3927357

## Customer spec. information

Customer : CDC  
Motor : 6BTA-590 ELITE  
Power KW : 138.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 7.75  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.30  
Tolerance mm : ± 0.05

Del. quantity cm <sup>3</sup> /1000 strokes	: 140.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 3.0
Speed	
Tolerance cm <sup>3</sup> /1000 strokes	: 4.0
Check tolerance cm <sup>3</sup> /1000S.	: 7.5

Rated speed rpm	: 475
Rack travel in mm	: 5.40
Tolerance mm	: ± 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	: 21.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 2.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.5
Speed	
Tolerance cm <sup>3</sup> /1000 strokes	: 6.0
Check tolerance cm <sup>3</sup> /1000S.	: 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: ± 0.20
governor spring pre-tension click setting x	: 4.00

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1250
-----------------	--------

Aneroid pressure hPa	: 1500
Del. quantity cm <sup>3</sup> /1000 strokes	: 140.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 3.0
Speed	
Tolerance cm <sup>3</sup> /1000 strokes	: 4.0
Check tolerance cm <sup>3</sup> /1000S.	: 7.5

#### CONTROL LEVER

control lever position degree	: 107.0
tolerance degree	: ± 4.0

RATED SPEED	
rack travel mm	: 10.30
Rated speed rpm	: 1295
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1365
Tolerance 1/min	: ± 15

rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1500

rack travel mm	: 4.00
Rated speed rpm	: 1375
Tolerance 1/min	: ± 15

#### LOW IDLE

control lever position degree	: 83.0
tolerance degree	: ± 4.0

#### Setting point w/out bumper spring

Rated speed rpm	: 475
rack travel mm	: 4.90
Tolerance mm	: ± 0.10

#### Testing:

Rated speed rpm	: 475
rack travel mm	: 5.40
Tolerance mm	: ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 595  
Tolerance 1/min : + 30

---

#### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 11.30  
Tolerance mm : + 0.05

Rated speed rpm : 750  
rack travel mm : 11.30  
Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 11.30  
Tolerance mm : + 0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 9.00  
Tolerance mm : + 0.20

##### MEASUREMENT

Rated speed rpm : 500  
  
Pressure hPa : 900  
rack travel mm : 10.75  
Tolerance mm : + 0.20

Pressure hPa : 560  
rack travel mm : 9.55  
Tolerance mm : + 0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 157.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### Aneroid pressure

hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 97.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm : + 0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 165.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 25.0

---

#### LOW IDLE

Rated speed rpm : 475  
  
Rack travel in mm : 5.40  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.03.98  
Test oil : ISO 4113

Combination No. : 0 402 066 712

Injection pump  
Pump designation : PES6P120A120RS3358  
EP type number : 0 412 026 784

Governor  
Governor design. : RSV475...1200P2A675  
Governor no. : 0 421 833 594

Cust. part No. : 3283573

## Customer spec. information

Customer : CDC  
Motor : 6BTA-590 ELITE  
Power KW : 138.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5

Overflow quantity  
min. l/h : 100  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 7.75  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1200



---

Rack travel in mm : 11.30  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 140.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

Rated speed rpm : 485

Rack travel in mm : 5.30  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 3.50

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200  
Aneroid pressure

hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 140.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

#### CONTROL LEVER

control lever  
position degree : 104.0  
tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : 10.30  
Rated speed rpm : 1265

Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1345

Tolerance 1/min :  $\pm$  15

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1475

rack travel mm : 4.00  
Rated speed rpm : 1355

Tolerance 1/min :  $\pm$  15

---

#### LOW IDLE

control lever  
position degree : 82.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 485  
rack travel mm : 4.80

Tolerance mm :  $\pm$  0.10

### Testing:

Rated speed rpm : 485  
rack travel mm : 5.30  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 605  
Tolerance 1/min :  $\pm$  30

### TORQUE CONTROL

Rated speed rpm : 1200  
rack travel mm : 11.30  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 11.30  
Tolerance mm :  $\pm$  0.10

### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 11.30  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 9.00  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 560  
rack travel mm : 9.55  
Tolerance mm :  $\pm$  0.05

### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 157.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 97.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 170.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

### LOW IDLE

Rated speed rpm : 485  
Rack travel in mm : 5.30  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.03.98  
Test oil : ISO 4113

Combination No. : 0 402 086 705

Injection pump  
Pump designation : PES6P100B321RS3388  
EP type number : 0 412 006 714

Governor  
Governor design. : RSV400...1125POA694  
Governor no. : 0 421 833 617

Cust. part No. : 51.10100-7606

Customer-spec. information  
Customer : MAN  
Motor : D0826 LE527  
Power KW : 169.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 150  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.30  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 13.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 925

Rack travel in mm : 13.90  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 169.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

Rated speed rpm : 400

Rack travel in mm : 4.80  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3

governor spring  
pre-tension  
click setting x : 5.50

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 925

Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 169.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

##### RATED SPEED

rack travel mm : 12.10

Rated speed rpm : 1175

Tolerance 1/min :  $\pm$  5

rack travel mm : 0.85

Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1400

---

##### LOW IDLE

Setting point w/out bumper spring

Rated speed rpm : 400

rack travel mm : 4.30

Tolerance mm :  $\pm$  0.10

##### Testing:

Rated speed rpm : 400

rack travel mm : 4.80

Tolerance mm :  $\pm$  0.10

---

##### TORQUE CONTROL

Rated speed rpm : 925

rack travel mm : 13.90

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1125

rack travel mm : 13.10

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 700

rack travel mm : 14.00

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000

rack travel mm : 13.70

Tolerance mm :  $\pm$  0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 14.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 9.50  
Tolerance mm :  $\pm$  0.20

MEASUREMENT

Rated speed rpm : 500  
  
Pressure hPa : 150  
rack travel mm : 10.00  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 800  
rack travel mm : 13.20  
Tolerance mm :  $\pm$  0.15

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 1125  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 146.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 700  
rack travel mm : 14.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 180.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 90.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 9.50  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 112.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

LOW IDLE

Rated speed rpm : 400  
  
Rack travel in mm : 4.80  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 29.11.94  
Test oil : ISO 4113

Combination No. : 0 402 646 605A

Injection pump  
Pump designation : PE6P130A720RS7197  
EP type number :

Governor  
Governor design. : RQV300...1000PA946  
: -2  
Governor no. :

Cust. part No. :

Customer-spec. information  
Customer : IVECO-UNIC  
Motor : 8210.22.800  
Power KW : 224.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 140  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

H05

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.30

Tolerance mm	: ± 0.05
Del. quantity cm <sup>3</sup> /1000 strokes	: 191.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.0
Speed	
Tolerance cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance cm <sup>3</sup> /1000S.	: 8.0

Rated speed rpm	: 300
Rack travel in mm	: 5.20
Tolerance mm	: ± 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	: 22.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 3.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 7.0
Speed	
Tolerance cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance cm <sup>3</sup> /1000S.	: 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1045
guide sleeve travel mm	: 8.40
Tolerance mm	: ± 0.15
Rated speed rpm	: 300
guide sleeve travel mm	: 1.20
Tolerance mm	: ± 0.20
Rated speed rpm	: 700
guide sleeve travel mm	: 5.20
Tolerance mm	: ± 0.25
Rated speed rpm	: 400

H06

guide sleeve travel mm	: 2.60
Tolerance mm	: ± 0.25
Rated speed rpm	: 1350
guide sleeve travel mm	: 11.50
Tolerance mm	: ± 0.50

##### GUIDE SLEEVE POSITION

control lever position degree	: - 1
Rated speed rpm	: 1130
Rack travel in mm	: 10.90
Tolerance mm	: ± 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1000
Aneroid pressure hPa	: 900
Del. quantity cm <sup>3</sup> /1000 strokes	: 191.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.0
Speed	
Tolerance cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance cm <sup>3</sup> /1000S.	: 8.0

##### CONTROL LEVER

control lever position degree	: 116.0
tolerance degree	: ± 4.0

##### RATED SPEED

rack travel mm	: 10.90
Rated speed rpm	: 1045
Tolerance 1/min	: ± 5
rack travel mm	: 4.00
Rated speed rpm	: 1145
Tolerance 1/min	: ± 15
rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1350
rack travel mm	: 4.00



---

#### LOW IDLE

control lever  
position degree : 64.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 100  
CRT mm min. :  $>$  6.70

#### Testing:

Rated speed rpm : 300  
rack travel mm : 5.20  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 410  
Tolerance 1/min :  $\pm$  20

Rated speed rpm : 470

---

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 11.30  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 550  
rack travel mm : 11.30  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 11.20  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.20  
Tolerance mm :  $\pm$  0.10

#### MEASUREMENT

Rated speed rpm : 500

H07

Pressure hPa : 320  
rack travel mm : 10.65  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 190.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 162.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

ESS test: With 24 V solenoid activated,  
rack must reach start position in max.  
control lever setting.

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 240.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 5.20  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 7.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 02.01.97  
Test oil : ISO 4113  
  
Combination No. : 0 402 646 649  
  
Injection pump  
Pump designation : PE6P130A72ORS7339  
EP type number : 0 412 636 833  
  
Governor  
Governor design. : RQV300...950PA905-1  
Governor no. : 0 421 814 097

Cust. part No. :

Customer spec. information  
Customer : IVECO-AIFO  
Motor : 8210.SRI  
Power kW : 353.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 417 413 025  
  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
  
Test nozzle holder  
assembly : 1 688 901 105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 075  
  
Outside diameter : 8.0

H09

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 5.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 14.00  
Tolerance mm : ± 0.50  
  
Firing order : 1- 5- 3- 6- 2-  
: 4  
  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
  
Start of delivery mark  
  
Check  
tolerance °NW : ± 0.40  
  
Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 950  
  
Rack travel in mm : 13.95  
Tolerance mm : ± 0.05  
  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 338.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spread

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Rated speed rpm : 300

Rack travel in mm : 4.70  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 24.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 7.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1000  
guide sleeve  
travel mm : 7.75  
Tolerance mm : + 0.15

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.81  
Tolerance mm : + 0.20

Rated speed rpm : 409  
guide sleeve  
travel mm : 2.86  
Tolerance mm : + 0.25

Rated speed rpm : 459  
guide sleeve  
travel mm : 3.29  
Tolerance mm : + 0.25

Rated speed rpm : 720  
guide sleeve  
travel mm : 4.94  
Tolerance mm : + 0.25

Rated speed rpm : 1260  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

---

GUIDE SLEEVE POSITION

Rated speed rpm : 1090

Rack travel in mm : 12.90  
Tolerance mm : + 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 950  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 338.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

CONTROL LEVER

control lever  
position degree : 114.0  
tolerance degree : + 4.0

RATED SPEED  
rack travel mm : 12.90  
Rated speed rpm : 995  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1115  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1200

rack travel mm : 4.00

---

## LOW IDLE

control lever  
position degree : 65.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. :  $>$  6.20

### Testing:

Rated speed rpm : 300  
rack travel mm : 4.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 430

---

## TORQUE CONTROL

Rated speed rpm : 950  
rack travel mm : 13.95  
Tolerance mm :  $\pm$  0.05

---

## ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 13.95  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.40  
Tolerance mm :  $\pm$  0.15

### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 350  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 520  
rack travel mm : 12.95  
Tolerance mm :  $\pm$  0.05

---

Start interlock

H11

Rated speed rpm :  $>$  100

Check  
speed 1/min :  $>$  80

---

## FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 196.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

## STARTING FUEL DELIVERY

ESS test: With 24 V solenoid activated,  
rack must reach start position in max.  
control lever setting.

---

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

## LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 4.70  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 24.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  7.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 23.03.98

Test oil : ISO 4113

Combination No. : 0 402 646 670

## Injection pump

Pump designation : PE6P120A320RS7438

EP type number : 0 412 626 965

## Governor

Governor design. : RQV275...1150PA1296K

Governor no. : 0 421 815 523

Cust. part No. : 1316183

## Customer spec. information

Customer : DAF

Motor : PF 235 M

Power kW : 230.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

## Overflow quantity

min. l/h : 150

Tolerance l/h : ± 20.0

## Test nozzle holde assembly

: 1 688 901 105

## Opening pressure bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.85

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10

## Check

tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 13.50

Tolerance mm : ± 0.05

Del. quantity cm <sup>3</sup> /1000 strokes	: 259.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.0
Speed	
Tolerance cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance cm <sup>3</sup> /1000S.	: 9.0

Rated speed rpm	: 275
Rack travel in mm	: 5.00
Tolerance mm	: ± 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	: 16.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 3.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 6.0
Speed	
Tolerance cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance cm <sup>3</sup> /1000S.	: 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1201
guide sleeve travel mm	: 10.07
Tolerance mm	: ± 0.15
Rated speed rpm	: 275
guide sleeve travel mm	: 1.71
Tolerance mm	: ± 0.20
Rated speed rpm	: 811
guide sleeve travel mm	: 6.79
Tolerance mm	: ± 0.25
Rated speed rpm	: 450

guide sleeve travel mm	: 3.85
Tolerance mm	: ± 0.25

Rated speed rpm	: 1480
guide sleeve travel mm	: 13.50
Tolerance mm	: ± 0.50

##### GUIDE SLEEVE POSITION

control lever position degree	: - 1
Rated speed rpm	: 1321

Rack travel in mm	: 12.25
Tolerance mm	: ± 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 850
Aneroid pressure hPa	: 1500
Del. quantity cm <sup>3</sup> /1000 strokes	: 259.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.0
Speed	
Tolerance cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance cm <sup>3</sup> /1000S.	: 9.0

##### CONTROL LEVER

control lever position degree	: 119.0
tolerance degree	: ± 4.0

RATED SPEED	
rack travel mm	: 12.20
Rated speed rpm	: 1185
Tolerance 1/min	: ± 5
Check speed 1/min	: ± 10

rack travel mm	: 4.00
Rated speed rpm	: 1310
Tolerance 1/min	: ± 15
Check speed 1/min	: ± 20

rack travel mm	: 0.70
----------------	--------



Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1450

---

#### LOW IDLE

control lever  
position degree : 70.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 175  
CRT mm min. :  $>$  7.60

#### Testing:

Rated speed rpm : 275  
rack travel mm : 5.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 395

---

#### TORQUE CONTROL

Rated speed rpm : 850  
rack travel mm : 13.50  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1130  
rack travel mm : 13.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000  
rack travel mm : 13.35  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 800  
rack travel mm : 13.45  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 650  
rack travel mm : 12.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 11.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1150  
rack travel mm : 13.20  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 875  
Pressure hPa : 1500  
rack travel mm : 13.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 875  
Pressure hPa : -  
rack travel mm : 9.15  
Tolerance mm :  $\pm$  0.10

#### MEASUREMENT

Rated speed rpm : 875  
Pressure hPa : 450  
rack travel mm : 12.10  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 150  
rack travel mm : 9.80  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 1130  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 232.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

rack travel mm : 13.35  
Tolerance mm :  $\pm$  0.10

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 170.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

LOW IDLE

Rated speed rpm : 275  
Rack travel in mm : 5.00  
Tolerance mm : +- 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 23.03.98  
Test oil : ISO 4113  
Combination No. : 0 402 646 681  
Injection pump  
Pump designation : PE6P120A32ORS7412  
EP type number : 0 412 626 953

Governor  
Governor design. : RQV275...1000PA1381K  
Governor no. : 0 421 815 561

Cust. part No. : 1349846/0

## Customer spec. information

Customer : DAF  
Motor : XF 250  
Power KW : 250.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Test nozzle holder assembly : 1 688 901 105

Opening pressure bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

H17

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05

Rack travel in mm : 11.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.50  
Check tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check tolerance °NW : ± 0.70

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 11.50  
Tolerance mm : ± 0.10

Del. quantity cm<sup>3</sup>/1000 strokes : 250.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 13.0

Rated speed rpm : 275

Rack travel in mm : 3.90  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1055  
guide sleeve  
travel mm : 7.47  
Tolerance mm : + 0.15

Rated speed rpm : 275  
guide sleeve  
travel mm : 2.04  
Tolerance mm : + 0.20

Rated speed rpm : 820  
guide sleeve  
travel mm : 5.14  
Tolerance mm : + 0.25

Rated speed rpm : 480  
guide sleeve  
travel mm : 3.34  
Tolerance mm : + 0.25

Rated speed rpm : 1282  
guide sleeve  
travel mm : 12.00  
Tolerance mm : + 0.25

Rated speed rpm : 1370  
guide sleeve  
travel mm : 13.50  
Tolerance mm : + 0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1263

Rack travel in mm : 10.50  
Tolerance mm : + 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 250.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 13.0

##### CONTROL LEVER

control lever  
position degree : 110.0  
tolerance degree : + 4.0

RATED SPEED  
rack travel mm : 10.50  
Rated speed rpm : 1045  
Tolerance 1/min : + 5  
Check  
speed 1/min : + 10

rack travel mm : 4.00  
Rated speed rpm : 1130  
Tolerance 1/min : + 15  
Check  
speed 1/min : + 20

rack travel mm : 0.70  
Tolerance mm : + 0.70  
Rated speed rpm : 1275

---

#### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 175

CRT mm min. :  $>$  7.00

#### Testing:

Rated speed rpm : 275  
rack travel mm : 3.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300

---

#### TORQUE CONTROL

Rated speed rpm : 980  
rack travel mm : 11.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 900  
rack travel mm : 11.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 750  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 11.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 775  
Pressure hPa : 1500

rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 775  
Pressure hPa : 460  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Rated speed rpm : 775

Pressure hPa : -  
rack travel mm : 8.30  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 250  
rack travel mm : 9.30  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 289.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 15.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 188.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 15.0

---

---

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : 3.90  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.12.92  
Test oil : ISO 4113  
Combination No. : 0 402 648 854  
Injection pump  
Pump designation : PE8P130A920/5LS7822  
EP type number : 0 412 638 802  
Governor  
Governor design. : RQV300...950PA905  
Governor no. : 0 421 813 723

Cust. part No. :

Customer-spec. information  
Customer : IVECO-FIAT  
Motor : 8280.42.001

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 688 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.15  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 8- 4- 3- 6  
                  : - 5- 7- 2

Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 11.45  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 222.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000s. : + 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

Rated speed rpm : 300

Rack travel in mm : 5.00

Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 27.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000s. : + 7.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000s. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 950  
guide sleeve  
travel mm : 7.30  
Tolerance mm : + 0.10

Rated speed rpm : 225  
guide sleeve  
travel mm : 0.85  
Tolerance mm : + 0.25

Rated speed rpm : 600  
guide sleeve  
travel mm : 4.10  
Tolerance mm : + 0.30

Rated speed rpm : 350  
guide sleeve  
travel mm : 2.30  
Tolerance mm : + 0.20

Rated speed rpm : 1200

guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1020

Rack travel in mm : 16.50  
Tolerance mm : + 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550

Aneroid pressure  
hPa : 900

Del. quantity  
cm<sup>3</sup>/1000 strokes : 222.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000s. : + 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

##### CONTROL LEVER

control lever  
position degree : 113.0  
tolerance degree : + 4.0

##### RATED SPEED

rack travel mm : 10.40  
Rated speed rpm : 1000  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1095  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1200

rack travel mm : 4.00

##### LOW IDLE



control lever  
position degree : 67.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. :  $>$  6.50

Testing:

Rated speed rpm : 300  
rack travel mm : 5.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 430

---

#### TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 11.45  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 950  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 11.45  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 9.45  
Tolerance mm :  $\pm$  0.15

##### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 330  
rack travel mm : 9.90  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 390  
rack travel mm : 10.95  
Tolerance mm :  $\pm$  0.05

---

Start interlock

H23

Rated speed rpm :  $>$  100

Check  
speed 1/min :  $>$  80

---

#### FUEL DELIVERY CHARACTERISTICS

---

##### Aneroid pressure

hPa : 900  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 218.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0

---

##### Aneroid pressure

hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 162.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 240.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 5.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 27.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  7.0  
Speed

Tolerance  
cm3/1000 strokes : 6.0  
Check tolerance  
cm3/1000s. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.08.93  
Test oil : ISO 4113  
Combination No. : 0 402 648 912  
Injection pump  
Pump designation : PE8P130A920/5LS7841  
EP type number : 0 412 638 803

Governor  
Governor design. : RQV300...950PA994K  
Governor no. : 0 421 815 275

Cust. part No. :

Customer-spec. information  
Customer : IVECO-FIAT  
Motor : 3280.42.050

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 12.00  
Tolerance mm : ± 0.50

Firing order : 1- 8- 4- 3- 6  
: - 5- 7- 2

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 10.55  
Tolerance mm :  $\pm 0.05$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 215.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.0$

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm 4.0$

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

Rated speed rpm : 300

Rack travel in mm : 4.20  
Tolerance mm :  $\pm 0.10$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.0$

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm 6.0$

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 700  
guide sleeve  
travel mm : 6.20  
Tolerance mm :  $\pm 0.30$

Rated speed rpm : 995  
guide sleeve  
travel mm : 9.70  
Tolerance mm :  $\pm 0.15$

Rated speed rpm : 500  
guide sleeve  
travel mm : 4.40  
Tolerance mm :  $\pm 0.30$

Rated speed rpm : 300  
guide sleeve  
travel mm : 2.60  
Tolerance mm :  $\pm 0.20$

Rated speed rpm : 1250  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm 0.50$

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1080

Rack travel in mm : 9.40  
Tolerance mm :  $\pm 1.30$

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
Aneroid pressure  
hPa : 900

Del. quantity  
cm<sup>3</sup>/1000 strokes : 215.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.0$

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm 4.0$

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

##### CONTROL LEVER

control lever  
position degree : 112.0  
tolerance degree :  $\pm 4.0$

RATED SPEED  
rack travel mm : 9.40  
Rated speed rpm : 995  
Tolerance 1/min :  $\pm 5$

rack travel mm : 4.00  
Rated speed rpm : 1050  
Tolerance 1/min :  $\pm 15$

rack travel mm : 0.50  
Tolerance mm :  $\pm 0.50$   
Rated speed rpm : 1200

rack travel mm : 4.00

---

#### LOW IDLE

control lever  
position degree : 62.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. :  $>$  5.70

#### Testing:

Rated speed rpm : 300  
rack travel mm : 4.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 230

---

#### TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 10.55  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 950  
rack travel mm : 10.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 700  
rack travel mm : 10.55  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 350  
rack travel mm : 10.15  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 550  
rack travel mm : 8.00  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 950  
Pressure hPa : 900  
rack travel mm : 10.55  
Tolerance mm :  $\pm$  0.05

H27

Rated speed rpm : 950  
Pressure hPa : -  
rack travel mm : 7.40  
Tolerance mm :  $\pm$  0.10

#### MEASUREMENT

Rated speed rpm : 950

Pressure hPa : 260  
rack travel mm : 8.20  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 360  
rack travel mm : 9.75  
Tolerance mm :  $\pm$  0.05

---

#### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  220

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 217.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0

---

rack travel mm : 10.55  
Tolerance mm :  $\pm$  0.15

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  8.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0

Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 140.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 165.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

---

#### LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 4.20  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.09.93  
Test oil : ISO 4113  
Combination No. : 0 402 648 958  
Injection pump  
Pump designation : PE8P120A320LS7863  
EP type number : 0 412 628 874  
Governor  
Governor design. : RQV300...1050PA1056  
: -?K  
Governor no. : 0 421 815 341  
Cust. part No. : 0240743302

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442 LA  
Power KW : 370.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 025  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
Overflow quantity  
min. l/h : 105  
Tolerance l/h : ± 10.0  
Test nozzle holder  
assembly : 1 688 901 105  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

J01

Test lines : 1 680 750 075  
Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 5.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 14.00  
Tolerance mm : ± 0.50  
Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1  
Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Start of delivery mark  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 14.05  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 258.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.80  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1106  
guide sleeve  
travel mm : 8.96  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.85  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 850

guide sleeve  
travel mm : 5.60  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 347  
guide sleeve  
travel mm : 2.72  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 397  
guide sleeve  
travel mm : 3.26  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 530  
guide sleeve  
travel mm : 3.77  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1219  
guide sleeve  
travel mm : 12.00  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1300  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1180

Rack travel in mm : 13.00  
Tolerance mm :  $\pm$  1.30

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 253.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0



---

#### CONTROL LEVER

control lever  
position degree : 119.0  
tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : 13.00  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1170  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.75  
Tolerance mm :  $\pm$  0.75  
Rated speed rpm : 1300

---

#### LOW IDLE

control lever  
position degree : 75.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. :  $>$  7.70

Testing:

Rated speed rpm : 300  
rack travel mm : 5.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 14.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 950  
rack travel mm : 14.45  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 850  
rack travel mm : 14.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 750

rack travel mm : 14.20  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 650  
rack travel mm : 13.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 550  
rack travel mm : 13.50  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 850  
Pressure hPa : 1200  
rack travel mm : 14.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 7.95  
Tolerance mm :  $\pm$  0.15

#### MEASUREMENT

Rated speed rpm : 850  
Pressure hPa : 150  
rack travel mm : 8.90  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 550  
rack travel mm : 12.40  
Tolerance mm :  $\pm$  0.05

---

#### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  220

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  240

---

#### FUEL DELIVERY CHARACTERISTICS

rack travel mm : 14.60

Tolerance mm :  $\pm$  0.10

---

Aneroid pressure

hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 262.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure

hPa : -  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 256.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure

hPa : -  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 204.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

---

Aneroid pressure

hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 133.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 11.60  
Tolerance mm :  $\pm$  0.40  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 5.80  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 29.09.94  
Test oil : ISO 4113  
Combination No. : 0 402 735 816  
Injection pump  
Pump designation : PES5P120A720/3LS7310  
: -1  
EP type number : 0 412 725 820  
Governor  
Governor design. : RQ325/1000PA1106-1  
Governor no. : 0 421 801 700

Cust. part No. : 51.11103-7391

## Customer spec. information

Customer : MAN  
Motor : D2865LUH06  
Power KW : 191.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
Tolerance l/h : ± 20.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.15  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 12.80  
Tolerance mm : ± 0.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 5

## BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 10.80

Tolerance mm	: + 0.05
<hr/>	
Del. quantity cm <sup>3</sup> /1000 strokes	: 235.0
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: + 1.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: + 4.0
<hr/>	
Speed	
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: 5.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: 9.0
<hr/>	

Rated speed rpm	: 325
Rack travel in mm	: 4.90
Tolerance mm	: + 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	: 43.0
Tolerance cm <sup>3</sup> /1000 strokes	: + 3.0
Check tolerance cm <sup>3</sup> /1000S.	: + 6.0
Speed	
Tolerance cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance cm <sup>3</sup> /1000S.	: 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1071
guide sleeve travel mm	: 7.35
Tolerance mm	: + 0.10
<hr/>	
Rated speed rpm	: 325
guide sleeve travel mm	: 2.50
Tolerance mm	: + 0.10
<hr/>	
Rated speed rpm	: 1000
guide sleeve travel mm	: 7.01
Tolerance mm	: + 0.10
<hr/>	
Rated speed rpm	: 777

guide sleeve travel mm	: 7.01
Tolerance mm	: + 0.10
<hr/>	
Rated speed rpm	: 408
guide sleeve travel mm	: 4.50
Tolerance mm	: + 0.10
<hr/>	
Rated speed rpm	: 530
guide sleeve travel mm	: 7.00
Tolerance mm	: + 0.10
<hr/>	
Rated speed rpm	: 1220
guide sleeve travel mm	: 11.50
Tolerance mm	: + 0.50

##### GUIDE SLEEVE POSITION

control lever position degree	: 109
Rated speed rpm	: 700
<hr/>	
Rack travel in mm	: 15.50
Tolerance mm	: + 0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 550
Aneroid pressure hPa	: 750
Del. quantity cm <sup>3</sup> /1000 strokes	: 235.0
Tolerance cm <sup>3</sup> /1000 strokes	: + 1.0
Check tolerance cm <sup>3</sup> /1000S.	: + 4.0
Speed	
Tolerance cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance cm <sup>3</sup> /1000S.	: 9.0

##### CONTROL LEVER

control lever position degree	: 100.0
tolerance degree	: + 4.0

##### RATED SPEED

rack travel mm	: 11.10
Rated speed rpm	: 1053
Tolerance 1/min	: + 8

rack travel mm : 4.00  
Rated speed rpm : 1130  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1250

---

#### LOW IDLE

control lever  
position degree : 75.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. :  $>$  8.00

#### Testing:

Rated speed rpm : 325  
rack travel mm : 4.90  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 390  
Tolerance 1/min :  $\pm$  20

---

#### TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.15

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 750  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 8.50  
Tolerance mm :  $\pm$  0.10

#### 2-stage LDA setting

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 11.05

#### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 250  
rack travel mm : 8.75  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 500  
rack travel mm : 10.05  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 1250  
rack travel mm : 11.65  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 2000  
rack travel mm : 12.10  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 2000  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 264.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

---

Aneroid pressure  
hPa : 2000  
Rated speed rpm : 1000  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 244.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 159.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 8.50  
Tolerance mm : + 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 75.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 10.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 14.0

---

#### LOW IDLE

Rated speed rpm : 325  
  
Rack travel in mm : 4.90  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 43.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.08.97

Test oil : ISO 4113

Combination No. : 0 402 736 810

## Injection pump

Pump designation : PES6P110A120RS7213

EP type number : 0 412 716 804

## Governor

Governer design. : RQV400...1250PA964

: -2K

Governer no. : 0 421 815 254

Cust. part No. : 3921777

## Customer-spec. information

Customer : CDC

Motor : 6BTA-A

Power KW : 141.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5

Overflow quantity

min. l/h : 120

Tolerance l/h : ± 5.0

Test nozzle holder assembly

: 1 688 901 101

Opening pressure bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.40

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 6.00

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no. : 1

---

#### BASIC SETTING

Rated speed rpm : 1250

---

Rack travel in mm : 14.85  
Tolerance mm :  $\pm 0.05$

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 163.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.0$

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.0$

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 400

Rack travel in mm : 5.50  
Tolerance mm :  $\pm 0.10$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 36.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.0$

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 5.0$

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1300  
guide sleeve  
travel mm : 7.30  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 325  
guide sleeve  
travel mm : 0.90

Tolerance mm :  $\pm 0.20$

Rated speed rpm : 600  
guide sleeve  
travel mm : 3.10  
Tolerance mm :  $\pm 0.20$

Rated speed rpm : 400  
guide sleeve  
travel mm : 1.50  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 1500  
guide sleeve  
travel mm : 9.30  
Tolerance mm :  $\pm 0.20$

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1450

Rack travel in mm : 13.80  
Tolerance mm :  $\pm 1.30$

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
kPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 163.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.0$

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.0$

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 63.0  
tolerance degree :  $\pm 4.0$

control lever  
position degree : 119.0  
tolerance degree :  $\pm 4.0$

RATED SPEED  
rack travel mm : 13.80  
Rated speed rpm : 1300  
Tolerance 1/min :  $\pm 5$



rack travel mm : 4.00  
Rated speed rpm : 1475  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1600

---

#### LOW IDLE

control lever  
position degree : 71.0  
tolerance degree : + 4.0

control lever  
position degree : 15.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 275  
CRT mm min. : > 7.20

#### Testing:

Rated speed rpm : 400  
rack travel mm : 5.50  
Tolerance mm : + 0.10

Rated speed rpm : 423

---

#### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 14.85  
Tolerance mm : + 0.05

Rated speed rpm : 800  
rack travel mm : 13.10  
Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1250  
Pressure hPa : 1200  
rack travel mm : 14.85  
Tolerance mm : + 0.05

Rated speed rpm : 1250  
Pressure hPa : -

rack travel mm : 8.50  
Tolerance mm : + 0.20

#### MEASUREMENT

Rated speed rpm : 1250

Pressure hPa : 690  
rack travel mm : 13.40  
Tolerance mm : + 0.20

Pressure hPa : 365  
rack travel mm : 10.25  
Tolerance mm : + 0.05

---

#### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 290

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 300

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 161.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 97.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 12.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

LOW IDLE

Rated speed rpm : 400  
Rack travel in mm : 5.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 36.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.03.98  
Test oil : ISO 4113

Combination No. : 0 402 736 862AA

Injection pump  
Pump designation : PES6P110A120RS7214  
EP type number : 0 412 716 805

Governor  
Governor design. : RQV350...1200PA964  
: -30K  
Governor no. : 0 421 815 432

Cust. part No. : 3282470

Customer-spec. information  
Customer : CUMMINS  
Motor : 6CTA-A  
Power KW : 213.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Overflow quantity  
min. l/h : 120  
Tolerance l/h : ± 5.0

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 23.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.40  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

\*NW after s.o.d. : 6.00  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.90  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 186.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.50  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 43.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1269  
guide sleeve  
travel mm : 9.75  
Tolerance mm : + 0.25

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.76  
Tolerance mm : + 0.25

Rated speed rpm : 829  
guide sleeve  
travel mm : 6.79  
Tolerance mm : + 0.25

Rated speed rpm : 322  
guide sleeve  
travel mm : 1.98  
Tolerance mm : + 0.25

Rated speed rpm : 372  
guide sleeve  
travel mm : 2.75  
Tolerance mm : + 0.25

Rated speed rpm : 460  
guide sleeve  
travel mm : 3.76  
Tolerance mm : + 0.25

Rated speed rpm : 1630  
guide sleeve  
travel mm : 13.50  
Tolerance mm : + 0.50

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1400

Rack travel in mm : 12.90  
Tolerance mm : + 1.30

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 186.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### CONTROL LEVER

control lever  
position degree : 60.0  
tolerance degree : + 4.0

control lever  
position degree : 112.0

tolerance degree : + 4.0

#### RATED SPEED

rack travel mm : 13.65

Rated speed rpm : 1150

Tolerance 1/min : + 5

rack travel mm : 4.00

Rated speed rpm : 1360

Tolerance 1/min : + 15

rack travel mm : 0.50

Tolerance mm : + 0.50

Rated speed rpm : 1500

#### LOW IDLE

control lever

position degree : 66.0

tolerance degree : + 4.0

control lever

position degree : 14.0

tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 7.65

Testing:

Rated speed rpm : 300

rack travel mm : 6.50

Tolerance mm : + 0.10

Rated speed rpm : 423

#### TORQUE CONTROL

Rated speed rpm : 900

rack travel mm : 13.90

Tolerance mm : + 0.05

Rated speed rpm : 700

rack travel mm : 12.90

Tolerance mm : + 0.35

Rated speed rpm : 1100

rack travel mm : 14.60

Tolerance mm : + 0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1100

Pressure hPa : 1200

rack travel mm : 14.60

Tolerance mm : + 0.05

Rated speed rpm : 1100

Pressure hPa : -

rack travel mm : 8.50

Tolerance mm : + 0.20

##### MEASUREMENT

Rated speed rpm : 1100

Pressure hPa : 675

rack travel mm : 14.30

Tolerance mm : + 0.20

Pressure hPa : 340

rack travel mm : 10.40

Tolerance mm : + 0.05

##### Start interlock

Rated speed rpm : > 100

Rated speed rpm : < 220

Check

speed 1/min : > 80

Check

speed 1/min : < 240

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1000

Rated speed rpm : 700

Del. quantity

cm<sup>3</sup>/1000 strokes : 180.0

Tolerance

cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance

cm<sup>3</sup>/1000S. : + 6.0

Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance

cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 1100  
rack travel mm : 14.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 185.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 104.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100  
rack travel mm : 11.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  25.0

---

#### LOW IDLE

Rated speed rpm : 300  
  
Rack travel in mm : 6.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 43.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.03.98  
Test oil : ISO 4113  
Combination No. : 0 402 736 888  
Injection pump  
Pump designation : PES6P120A120RS7390  
EP type number : 0 412 726 945  
Governor  
Governor design. : RQV350...1100PA1237K  
Governor no. : 0 421 815 475

Cust. part No. : 3283278

Customer spec. information  
Customer : CUMMINS  
Motor : 6CTAA  
Power KW : 162.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5

Overflow quantity  
min. l/h : 110  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.30  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 7.70  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.30  
Tolerance mm :  $\pm 0.05$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 164.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.0$

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.0$

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 4.80  
Tolerance mm :  $\pm 0.10$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.0$

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 5.0$

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1159  
guide sleeve  
travel mm : 10.27  
Tolerance mm :  $\pm 0.15$

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.93  
Tolerance mm :  $\pm 0.20$

Rated speed rpm : 710  
guide sleeve  
travel mm : 5.79  
Tolerance mm :  $\pm 0.25$

Rated speed rpm : 420  
guide sleeve  
travel mm : 4.28  
Tolerance mm :  $\pm 0.25$

Rated speed rpm : 1380  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm 0.50$

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1200

Rack travel in mm : 12.30  
Tolerance mm :  $\pm 2.00$

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 164.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.0$   
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 69.0  
tolerance degree :  $\pm 4.0$

control lever  
position degree : 123.0  
tolerance degree :  $\pm 4.0$

##### RATED SPEED

rack travel mm : 12.30  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm 5$

rack travel mm : 4.00  
Rated speed rpm : 1240  
Tolerance 1/min :  $\pm 15$



Check  
speed 1/min : + 20  
  
rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1350

---

#### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree : + 4.0

control lever  
position degree : 21.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 250  
  
CRT mm min. : > 7.70

#### Testing:

Rated speed rpm : 350  
rack travel mm : 4.80  
Tolerance mm : + 0.10

Rated speed rpm : 350

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 13.30  
Tolerance mm : + 0.05

Rated speed rpm : 750  
rack travel mm : 12.95  
Tolerance mm : + 0.10

Rated speed rpm : 900  
rack travel mm : 13.05  
Tolerance mm : + 0.15

Rated speed rpm : 600  
rack travel mm : 12.70  
Tolerance mm : + 0.15

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1100  
Pressure hPa : 1500  
rack travel mm : 13.30  
Tolerance mm : + 0.05

Rated speed rpm : 1100  
Pressure hPa : -  
rack travel mm : 10.60  
Tolerance mm : + 0.20

---

#### MEASUREMENT

Rated speed rpm : 1100  
  
Pressure hPa : 170  
rack travel mm : 11.80  
Tolerance mm : + 0.20

Pressure hPa : 330  
rack travel mm : 12.80  
Tolerance mm : + 0.05

---

#### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 280

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 300

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 12.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 16.0

rack travel mm : 13.05  
Tolerance mm : + 0.15

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 107.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : ± 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 185.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 24.0

---

#### LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 4.80  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 19.03.98

Test oil : ISO 4113

Combination No. : 0 402 736 889AA

## Injection pump

Pump designation : PES6P120A120RS7390

EP type number :

## Governor

Governer design. : RQV350...1100PA1244K

Governer no. :

Cust. part No. : 3282739

## Customer spec. information

Customer : CUMMINS

Motor : 5CTAA

Power KW : 179.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5

## Overflow quantity

min. L/h : 90

Tolerance L/h : ± 10.0

## Test nozzle holde

assembly : 1 688 901 101

## Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.30

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 7.70

Tolerance : ± 0.10

## Check

tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.70  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 173.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 350

Rack travel in mm : 4.60  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 173.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

rack travel mm : 12.70

Rated speed rpm : 1145

Tolerance 1/min :  $\pm$  5

Check  
speed 1/min :  $\pm$  20

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50

Rated speed rpm : 1350

---

##### LOW IDLE

##### Testing:

Rated speed rpm : 350

rack travel mm : 4.60

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 350

---

##### TORQUE CONTROL

Rated speed rpm : 1100

rack travel mm : 13.70

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700

rack travel mm : 13.85

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500

rack travel mm : 12.95

Tolerance mm :  $\pm$  0.15

---

##### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 700

Pressure hPa : 1500

rack travel mm : 13.20

Tolerance mm :  $\pm$  0.10  
Rated speed rpm : 700  
Pressure hPa : -  
rack travel mm : 10.10  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 700  
Pressure hPa : 400  
rack travel mm : 11.10  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 600  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.05

#### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  290

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  300

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 171.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

rack travel mm : 12.95  
Tolerance mm :  $\pm$  0.15

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 104.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 190.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

#### LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 4.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.03.98  
Test oil : ISO 4113

Combination No. : 0 402 736 893

Injection pump  
Pump designation : PES6P120A120RS7400  
EP type number : 0 412 726 950

Governor  
Governor design. : RQV350...1100PA1244  
: -2K  
Governor no. : 0 421 815 489

Cust. part No. : 3282609

---

Customer-spec. information  
Customer : CUMMINS  
Motor : 6CTAA  
Power kW : 206.0

---

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5

Overflow quantity  
min. l/h : 125  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.30  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 8.00  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1050

---

Rack travel in mm : 15.50  
Tolerance mm : + 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 211.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 350

Rack travel in mm : 5.50  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

#### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1159  
guide sleeve  
travel mm : 10.28  
Tolerance mm : + 0.15

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.93  
Tolerance mm : + 0.20

Rated speed rpm : 710  
guide sleeve  
travel mm : 5.79

Tolerance mm : + 0.25

Rated speed rpm : 500  
guide sleeve  
travel mm : 4.70  
Tolerance mm : + 0.25

Rated speed rpm : 1380  
guide sleeve  
travel mm : 13.50  
Tolerance mm : + 0.50

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1215

Rack travel in mm : 13.30  
Tolerance mm : + 2.00

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 211.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

#### CONTROL LEVER

control lever  
position degree : 66.0  
tolerance degree : + 4.0

control lever  
position degree : 122.0  
tolerance degree : + 4.0

RATED SPEED  
rack travel mm : 14.50  
Rated speed rpm : 1145  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1260

Tolerance 1/min : + 15  
 Check  
 speed 1/min : + 20  
 rack travel mm : 0.50  
 Tolerance mm : + 0.50  
 Rated speed rpm : 1350

#### LOW IDLE

control lever  
 position degree : 73.0  
 tolerance degree : + 4.0  
 control lever  
 position degree : 20.0  
 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 250  
 CRT mm min. : > 8.60

#### Testing:

Rated speed rpm : 350  
 rack travel mm : 5.50  
 Tolerance mm : + 0.10

Rated speed rpm : 350

#### TORQUE CONTROL

Rated speed rpm : 1050  
 rack travel mm : 15.50  
 Tolerance mm : + 0.05

Rated speed rpm : 650  
 rack travel mm : 15.00  
 Tolerance mm : + 0.10

Rated speed rpm : 900  
 rack travel mm : 15.40  
 Tolerance mm : + 0.15

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1050  
 Pressure hPa : 1500  
 rack travel mm : 15.50

Tolerance mm : + 0.05  
 Rated speed rpm : 1050  
 Pressure hPa : -  
 rack travel mm : 11.05  
 Tolerance mm : + 0.20

#### MEASUREMENT

Rated speed rpm : 1050  
 Pressure hPa : 820  
 rack travel mm : 14.15  
 Tolerance mm : + 0.20

Pressure hPa : 420  
 rack travel mm : 12.10  
 Tolerance mm : + 0.05

#### Start interlock

Rated speed rpm : > 100  
 Rated speed rpm : < 280

Check  
 speed 1/min : > 80  
 Check  
 speed 1/min : < 300

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : 1500  
 Rated speed rpm : 650  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 197.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 6.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 12.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 16.0

rack travel mm : 15.40  
 Tolerance mm : + 0.15

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 111.0



Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : + 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 195.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 20.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 24.0

---

LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 5.50  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : +- 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 11.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.03.98

Test oil : ISO 4113

Combination No. : 0 402 736 894

## Injection pump

Pump designation : PES6P120A120RS7400

EP type number : 0 412 726 950

## Governor

Governor design. : RQV350...1200PA1261

Governor no. : 0 421 815 495

Cust. part No. : 3282766

## Customer spec. information

Customer : CUMMINS

Motor : 6CTAA

Power KW : 191.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5

## Overflow quantity

min. l/h : 125

Tolerance l/h : ± 20.0

## Test nozzle holder assembly

: 1 688 901 101

## Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.30

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 7.70

Tolerance : ± 0.10

## Check

tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.65  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 190.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.50  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1258  
guide sleeve  
travel mm : 10.14  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.93  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 766  
guide sleeve  
travel mm : 5.91  
Tolerance mm :  $\pm$  0.25

K01

Rated speed rpm : 450  
guide sleeve  
travel mm : 4.49  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1520  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1340

Rack travel in mm : 12.60  
Tolerance mm :  $\pm$  2.00

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 190.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### CONTROL LEVER

control lever  
position degree : 66.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 120.0  
tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : 13.60  
Rated speed rpm : 1245  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1370  
Tolerance 1/min :  $\pm$  15

Check  
 speed 1/min : + 20  
 rack travel mm : 0.50  
 Tolerance mm : + 0.50  
 Rated speed rpm : 1450

---

#### LOW IDLE

control lever  
 position degree : 72.0  
 tolerance degree : + 4.0

control lever  
 position degree : 18.0  
 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 250

CRT mm min. : > 8.60

#### Testing:

Rated speed rpm : 350  
 rack travel mm : 5.50  
 Tolerance mm : + 0.10

Rated speed rpm : 350

---

#### TORQUE CONTROL

Rated speed rpm : 1150  
 rack travel mm : 14.65  
 Tolerance mm : + 0.05

Rated speed rpm : 600  
 rack travel mm : 14.10  
 Tolerance mm : + 0.10

Rated speed rpm : 750  
 rack travel mm : 14.75  
 Tolerance mm : + 0.15

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1150  
 Pressure hPa : 1500  
 rack travel mm : 14.65  
 Tolerance mm : + 0.05

K02

Rated speed rpm : 1150  
 Pressure hPa : -  
 rack travel mm : 11.10  
 Tolerance mm : + 0.20

#### MEASUREMENT

Rated speed rpm : 1150

Pressure hPa : 733  
 rack travel mm : 13.90  
 Tolerance mm : + 0.20

Pressure hPa : 400  
 rack travel mm : 11.90  
 Tolerance mm : + 0.05

---

#### Start interlock

Rated speed rpm : > 100  
 Rated speed rpm : < 280

Check  
 speed 1/min : > 80  
 Check  
 speed 1/min : < 300

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : 1500  
 Rated speed rpm : 600  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 176.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000s. : + 6.0  
 Spread  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 12.0  
 Check tolerance  
 cm<sup>3</sup>/1000s. : 16.0

rack travel mm : 14.75  
 Tolerance mm : + 0.15

---

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 111.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : ± 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 195.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 24.0

---

#### LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 5.50  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.03.98  
Test oil : ISO 4113

Combination No. : 0 402 746 654

Injection pump  
Pump designation : PES6P120A32ORS7379  
EP type number : 0 412 726 942

Governor  
Governor design. : RQV250...900PA1224K  
Governor no. : 0 421 815 468

Cust. part No. :

Customer-spec. information  
Customer : PERKINS  
Motor : EAGLE340TX  
Power KW : 250.0

## TEST BENCH REQUIREMENTS

Inlet Line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 084

Inlet press. bar : 3.0  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 130  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.90  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 12.00  
Tolerance mm : ± 1.00

Firing order : 1- 4- 2- 6- 3-  
: 5

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 13.70  
Tolerance mm : ± 0.05

Del. quantity cm <sup>3</sup> /1000 strokes	:	232.0
Tolerance cm <sup>3</sup> /1000 strokes	:	± 1.0
Check tolerance cm <sup>3</sup> /1000S.	:	± 4.0
Spreed		
Tolerance cm <sup>3</sup> /1000 strokes	:	5.0
Check tolerance cm <sup>3</sup> /1000S.	:	9.0

Rated speed rpm	:	300
Rack travel in mm	:	4.80
Tolerance mm	:	± 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	:	26.0
Tolerance cm <sup>3</sup> /1000 strokes	:	± 3.0
Check tolerance cm <sup>3</sup> /1000S.	:	± 6.0
Spreed		
Tolerance cm <sup>3</sup> /1000 strokes	:	8.0
Check tolerance cm <sup>3</sup> /1000S.	:	12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	958
guide sleeve travel mm	:	8.79
Tolerance mm	:	± 0.15
Rated speed rpm	:	300
guide sleeve travel mm	:	2.23
Tolerance mm	:	± 0.20
Rated speed rpm	:	676
guide sleeve travel mm	:	5.80
Tolerance mm	:	± 0.25
Rated speed rpm	:	430

guide sleeve travel mm	:	3.62
Tolerance mm	:	± 0.25

Rated speed rpm	:	1260
guide sleeve travel mm	:	13.50
Tolerance mm	:	± 0.50

GUIDE SLEEVE POSITION

control lever position degree	:	- 1
Rated speed rpm	:	1070

Rack travel in mm	:	15.90
Tolerance mm	:	± 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	850
Aneroid pressure hPa	:	1200
Del. quantity cm <sup>3</sup> /1000 strokes	:	232.0
Tolerance cm <sup>3</sup> /1000 strokes	:	± 1.0
Check tolerance cm <sup>3</sup> /1000S.	:	± 4.0
Spreed		
Tolerance cm <sup>3</sup> /1000 strokes	:	5.0
Check tolerance cm <sup>3</sup> /1000S.	:	9.0

CONTROL LEVER

control lever position degree	:	117.0
tolerance degree	:	± 4.0

RATED SPEED		
rack travel mm	:	12.70
Rated speed rpm	:	945
Tolerance 1/min	:	± 5

rack travel mm	:	4.00
Rated speed rpm	:	1065
Tolerance 1/min	:	± 15

rack travel mm	:	0.50
Tolerance mm	:	± 0.50
Rated speed rpm	:	1150

---

## LOW IDLE

control lever  
position degree : 72.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. :  $>$  6.30

### Testing:

Rated speed rpm : 300  
rack travel mm : 4.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 350

---

## TORQUE CONTROL

Rated speed rpm : 850  
rack travel mm : 13.70  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 13.25  
Tolerance mm :  $\pm$  0.10

---

## ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 850  
Pressure hPa : 1200  
rack travel mm : 13.70  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 850  
Pressure hPa : -  
rack travel mm : 8.85  
Tolerance mm :  $\pm$  0.20

### MEASUREMENT

Rated speed rpm : 850  
Pressure hPa : 610  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 350  
rack travel mm : 10.20

K06

Tolerance mm :  $\pm$  0.05

---

## Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  230

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  240

---

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 255.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

## STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 260.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

## LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 4.80



Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.03.98  
Test oil : ISO 4113

Combination No. : 0 402 746 844

Injection pump  
Pump designation : PES6P120A320RS7162  
EP type number : 0 412 726 819

Governor  
Governor design. : RQ750PA836-2  
Governor no. : 0 421 801 628

Cust. part No. :

Customer spec. information  
Customer : PERKINS  
Motor : 2006 TAG  
Power KW : 280.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 067

Outside diameter : 6.0

x inside diameter : 1.5  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 4- 2- 6- 3-  
: 5

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.05  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 380.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Del. quantity  
cm<sup>3</sup>/1000 strokes : 41.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 757  
guide sleeve  
travel mm : 1.84  
Tolerance mm : ± 0.25

Rated speed rpm : 930  
guide sleeve  
travel mm : 42.98  
Tolerance mm : ± 0.25

Rated speed rpm : 820  
guide sleeve  
travel mm : 9.41  
Tolerance mm : ± 0.25

Rated speed rpm : 824  
guide sleeve  
travel mm : 10.00  
Tolerance mm : ± 0.25

Rated speed rpm : 880

guide sleeve  
travel mm : 11.50  
Tolerance mm : ± 0.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 380.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 89.0  
tolerance degree : ± 4.0

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 750  
rack travel mm : 12.00

Rated speed rpm : 784  
Tolerance 1/min : ± 4  
rack travel mm : 4.00

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 820

Rated speed rpm : 751  
rack travel mm : 12.00

Rated speed rpm : 785  
Tolerance 1/min : ± 4  
rack travel mm : 4.00

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 820

Rated speed rpm : 752  
rack travel mm : 12.00

Rated speed rpm : 786  
 Tolerance 1/min :  $\pm$  4  
 rack travel mm : 4.00  
  
 rack travel mm : 0.50  
 Tolerance mm :  $\pm$  0.50  
 Rated speed rpm : 820

Rated speed rpm : 753  
 rack travel mm : 12.00

Rated speed rpm : 787  
 Tolerance 1/min :  $\pm$  4  
 rack travel mm : 4.00

rack travel mm : 0.50  
 Tolerance mm :  $\pm$  0.50  
 Rated speed rpm : 820

Rated speed rpm : 754  
 rack travel mm : 12.00

Rated speed rpm : 788  
 Tolerance 1/min :  $\pm$  4  
 rack travel mm : 4.00

rack travel mm : 0.50  
 Tolerance mm :  $\pm$  0.50  
 Rated speed rpm : 820

Rated speed rpm : 755  
 rack travel mm : 12.00

Rated speed rpm : 789  
 Tolerance 1/min :  $\pm$  4  
 rack travel mm : 4.00

rack travel mm : 0.50  
 Tolerance mm :  $\pm$  0.50  
 Rated speed rpm : 820

---

#### TORQUE CONTROL

Rated speed rpm : 700  
 rack travel mm : 13.05  
 Tolerance mm :  $\pm$  0.05

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 320.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 300  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 41.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  6.0  
 Speed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 20.03.98  
Test oil : ISO 4113  
Combination No. : 0 402 746 882  
Injection pump  
Pump designation : PES6P120A32ORS7156  
: -1  
EP type number : 0 412 726 830  
Governor  
Governor design. : RQV350...1050PA941  
: -1  
Governor no. : 0 421 813 887

Cust. part No. :

Customer-spec. information  
Customer : PERKINS  
Motor : 2006 TW-H  
Power KW : 261.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 047  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 1 688 901 019  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 067

K11

Outside diameter : 6.0  
x inside diameter : 1.5  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 4- 2- 6- 3-  
: 5

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 14.05  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 270.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spread

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 350

Rack travel in mm : 8.10

Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 66.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1104

guide sleeve

travel mm : 5.69

Tolerance mm : + 0.15

Rated speed rpm : 350

guide sleeve

travel mm : 0.69

Tolerance mm : + 0.20

Rated speed rpm : 1030

guide sleeve

travel mm : 5.00

Tolerance mm : + 0.25

Rated speed rpm : 540

guide sleeve

travel mm : 5.00

Tolerance mm : + 0.25

Rated speed rpm : 1360

guide sleeve

travel mm : 11.50

Tolerance mm : + 0.50

---

##### GUIDE SLEEVE POSITION

control lever

position degree : 105

Rated speed rpm : 800

Rack travel in mm : 16.50

Tolerance mm : + 1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure

hPa : 1200

Del. quantity

cm<sup>3</sup>/1000 strokes : 270.0

Tolerance

cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance

cm<sup>3</sup>/1000S. : + 4.0

Spread

Tolerance

cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance

cm<sup>3</sup>/1000S. : 9.0

---

##### CONTROL LEVER

control lever

position degree : 49.0

tolerance degree : + 4.0

control lever

position degree : 103.0

tolerance degree : + 4.0

---

##### RATED SPEED

rack travel mm : 13.00

Rated speed rpm : 1100

Tolerance 1/min : + 5

rack travel mm : 4.00

Rated speed rpm : 1195

Tolerance 1/min : + 15

rack travel mm : 0.50

Tolerance mm : + 0.50

Rated speed rpm : 1270

---

## LOW IDLE

control lever  
position degree : 70.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 16.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. :  $>$  10.00

### Testing:

Rated speed rpm : 350  
rack travel mm : 8.10  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 430  
Tolerance 1/min :  $\pm$  30

Rated speed rpm : 395

---

## TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 14.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 14.10  
Tolerance mm :  $\pm$  0.10

---

## ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 14.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.20

### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 560  
rack travel mm : 11.90  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 710  
rack travel mm : 13.15  
Tolerance mm :  $\pm$  0.05

---

### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  300

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  320

---

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 278.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 183.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 205.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 24.0

---

LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 8.10  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 66.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.11.93  
Test oil : ISO 4113  
Combination No. : 0 402 746 937  
Injection pump  
Pump designation : PES6P120A720RS7268  
EP type number : 0 412 726 884  
Governor  
Governor design. : RQ275/1100PA915-2  
Governor no. : 0 421 801 671

Cust. part No. :

Customer-spec. information  
Customer : IVECO-UNIC  
Motor : 8460.41.603

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : + 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0

Prestroke mm : 5.15  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10

Rack travel in mm : 10.50  
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75

## Start of delivery mark

Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.45  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 196.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 6.30  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (9) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : 109  
Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm : + 0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 900

Del. quantity  
cm<sup>3</sup>/1000 strokes : 196.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### RATED SPEED

rack travel mm : 10.90  
Rated speed rpm : 1153

Tolerance 1/min : + 8

rack travel mm : 4.00  
Rated speed rpm : 1245

Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50

Rated speed rpm : 1350

#### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : + 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 7.80

#### Testing:

Rated speed rpm : 275  
rack travel mm : 6.30  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 365  
Tolerance 1/min : + 20

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.45  
Tolerance mm : + 0.05

Rated speed rpm : 550  
rack travel mm : 12.50  
Tolerance mm : + 0.10

---

# ANEROID/ALTITUDE COMPENSATOR TEST

## SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 11.95  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 8.90  
Tolerance mm :  $\pm$  0.10

## MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 240  
rack travel mm : 9.50  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 310  
rack travel mm : 10.85  
Tolerance mm :  $\pm$  0.05

---

## FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 900  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 216.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 112.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

## STARTING FUEL DELIVERY

ESS test: With 24 V solenoid activated,  
rack must reach start position in max.  
control lever setting.

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

## LOW IDLE

Rated speed rpm : 275  
Rack travel in mm : 6.30  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 14.07.93  
Test oil : ISO 4113  
  
Combination No. : 0 402 746 943  
  
Injection pump  
Pump designation : PES6P120A720RS7224  
: -1  
EP type number : 0 412 726 889  
  
Governor  
Governor design. : RQ275/1050PA1021-3  
Governor no. : 0 421 801 677

Cust. part No. :

Customer-spec. information  
Customer : IVECO-UNIC  
Motor : 8460.41.731

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : + 0.1

Overflow quantity  
min. l/h : 140  
Tolerance l/h : + 20.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5

Test lines : 1 680 750 089  
  
Outside diameter : 8.0  
  
x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0

Prestroke mm : 5.15  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10

Rack travel in mm : 10.50  
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75

## Start of delivery mark

Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.25  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 223.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 5.00  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : 109  
Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm :  $\pm$  0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 223.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

rack travel mm : 11.70

Rated speed rpm : 1103

Tolerance 1/min :  $\pm$  8

rack travel mm : 4.00

Rated speed rpm : 1175

Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50

Rated speed rpm : 1350

##### LOW IDLE

control lever

position degree : 74.0

tolerance degree :  $\pm$  4.0

##### Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. :  $>$  6.50

##### Testing:

Rated speed rpm : 275

rack travel mm : 5.00

Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00

Rated speed rpm : 355

Tolerance 1/min :  $\pm$  20

##### TORQUE CONTROL

Rated speed rpm : 1050

rack travel mm : 13.25

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 550  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1050  
rack travel mm : 12.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 550  
rack travel mm : 12.80  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 12.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 7.70  
Tolerance mm :  $\pm$  0.10

##### MEASUREMENT

Rated speed rpm : 500  
  
Pressure hPa : 290  
rack travel mm : 8.80  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 580  
rack travel mm : 11.35  
Tolerance mm :  $\pm$  0.05

---

##### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  215

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  235

---

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 550

Del. quantity  
cm<sup>3</sup>/1000 strokes : 270.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  7.0

---

rack travel mm : 12.75  
Tolerance mm :  $\pm$  0.05

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 127.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

##### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

##### LOW IDLE

Rated speed rpm : 275  
  
Rack travel in mm : 5.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.01.94  
Test oil : ISO 4113

Combination No. : 0 402 746 963

Injection pump  
Pump designation : PES6P120A720LS7244  
EP type number : 0 412 726 857

Governor  
Governor design. : RQ750PA981-2  
Governor no. : 0 421 801 699

Cust. part No. : 3-7258

Customer-spec. information  
Customer : MAN  
Motor : D2866 LE  
Power KW : 244.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.75  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 19.50  
Tolerance mm : ± 1.50

Firing order : 6- 2- 4- 1- 5-  
: 3

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 6

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.35  
Tolerance mm : ± 0.05

Del. quantity cm <sup>3</sup> /1000 strokes	: 276.0
Tolerance cm <sup>3</sup> /1000 strokes	: +- 1.0
Check tolerance cm <sup>3</sup> /1000S.	: +- 4.0
Speed	
Tolerance cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance cm <sup>3</sup> /1000S.	: 9.0

Rated speed rpm	: 300
Del. quantity cm <sup>3</sup> /1000 strokes	: 23.0
Tolerance cm <sup>3</sup> /1000 strokes	: +- 3.0
Check tolerance cm <sup>3</sup> /1000S.	: +- 6.0
Speed	
Tolerance cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance cm <sup>3</sup> /1000S.	: 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm	: 750
guide sleeve travel mm	: 2.55
Tolerance mm	: +- 0.25
Rated speed rpm	: 860
guide sleeve travel mm	: 17.35
Tolerance mm	: +- 0.25
Rated speed rpm	: 816
guide sleeve travel mm	: 10.00
Tolerance mm	: +- 0.25
Rated speed rpm	: 870
guide sleeve travel mm	: 11.50
Tolerance mm	: +- 0.50

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 700
Aneroid pressure hPa	: -
Del. quantity cm <sup>3</sup> /1000 strokes	: 276.0
Tolerance cm <sup>3</sup> /1000 strokes	: +- 1.0
Check tolerance cm <sup>3</sup> /1000S.	: +- 4.0
Speed	
Tolerance cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance cm <sup>3</sup> /1000S.	: 9.0

#### CONTROL LEVER

control lever position degree	: 84.0
tolerance degree	: +- 2.0

#### ASSEMBLY GOVERNOR SETTING

Rated speed rpm	: 750
rack travel mm	: 11.35
Rated speed rpm	: 785
Tolerance 1/min	: +- 4
rack travel mm	: 4.00
rack travel mm	: 0.50
Tolerance mm	: +- 0.50
Rated speed rpm	: 950

Rated speed rpm	: 751
rack travel mm	: 11.35

Rated speed rpm	: 786
Tolerance 1/min	: +- 4
rack travel mm	: 4.00

rack travel mm	: 0.50
Tolerance mm	: +- 0.50
Rated speed rpm	: 950

Rated speed rpm	: 752
rack travel mm	: 11.35

Rated speed rpm	: 787
Tolerance 1/min	: +- 4
rack travel mm	: 4.00



rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 950

Rated speed rpm : 753  
rack travel mm : 11.35

Rated speed rpm : 788  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 950

Rated speed rpm : 754  
rack travel mm : 11.35

Rated speed rpm : 789  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 950

Rated speed rpm : 755  
rack travel mm : 11.35

Rated speed rpm : 790  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 950

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 12.35  
Tolerance mm :  $\pm$  0.05

---

#### LOW IDLE

Rated speed rpm : 300

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.10.93  
Test oil : ISO 4113  
Combination No. : 0 403 446 326  
Injection pump  
Pump designation : PES6MW100/720RS1188.  
EP type number : 0 413 406 175  
Governor  
Governor design. : RGV300...1350MW138  
Governor no. : 0 420 083 302

Cust. part No. :

Customer spec. information  
Customer : IVECO-AIFO  
Motor : 8061.SRM 30.10  
Power KW : 221.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1350

Rack travel in mm : 12.85  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 131.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

Rated speed rpm : 300

Rack travel in mm : 7.30  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1404  
guide sleeve  
travel mm : 7.90  
Tolerance mm : + 0.25

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.27  
Tolerance mm : + 0.25

Rated speed rpm : 965  
guide sleeve  
travel mm : 5.12  
Tolerance mm : + 0.25

Rated speed rpm : 408  
guide sleeve  
travel mm : 2.11  
Tolerance mm : + 0.25

Rated speed rpm : 458  
guide sleeve  
travel mm : 2.49  
Tolerance mm : + 0.25

Rated speed rpm : 580  
guide sleeve  
travel mm : 3.10  
Tolerance mm : + 0.25

Rated speed rpm : 1780  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1480

Rack travel in mm : 16.50  
Tolerance mm : + 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1350  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 131.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

##### CONTROL LEVER

control lever  
position degree : 116.0  
tolerance degree : + 4.0

RATED SPEED  
rack travel mm : 9.50  
Rated speed rpm : 1395  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1545  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1650

##### LOW IDLE

control lever  
position degree : 84.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. :  $>$  9.00

Testing:

Rated speed rpm : 300  
rack travel mm : 7.30  
Tolerance mm :  $\pm$  0.10

---

#### TORQUE CONTROL

Rated speed rpm : 1350  
rack travel mm : 12.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 12.90  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 12.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 9.85  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 300  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 250  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 134.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 69.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 12.95  
Tolerance mm :  $\pm$  0.15  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

#### LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 7.30  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm3/1000s. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.03.98  
Test oil : ISO 4113  
Combination No. : 0 403 466 131  
Injection pump  
Pump designation : PES6MW100/120RS1184  
EP type number : 0 413 406 171  
Governor  
Governor design. : RSV375...1250MW2A334  
: -1  
Governor no. : 0 420 085 207  
Cust. part No. : 3281954

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 BTA 5.9  
Power KW : 140.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 047  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 1 688 901 101  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1250  
Rack travel in mm : 10.35  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 111.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0  
Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

Rated speed rpm : 375

Rack travel in mm : 7.25  
Tolerance mm : + 0.25

Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5

Spread  
Tolerance

cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : + 0.35

governor spring  
pre-tension  
click setting x : 4.00

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : 800

Del. quantity  
cm<sup>3</sup>/1000 strokes : 111.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

Spread  
Tolerance

cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

#### CONTROL LEVER

control lever  
position degree : 111.0  
tolerance degree : + 4.0

RATED SPEED  
rack travel mm : 9.30

Rated speed rpm : 1300  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1380

Tolerance 1/min : + 15

rack travel mm : 1.00  
Tolerance mm : + 0.70

Rated speed rpm : 1550

rack travel mm : 4.00  
Rated speed rpm : 1435

Tolerance 1/min : + 15

#### LOW IDLE

control lever  
position degree : 87.0  
tolerance degree : + 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 375  
rack travel mm : 6.75  
Tolerance mm : + 0.25

Rated speed rpm : 100

CRT mm min. : > 19.00

#### Testing:

Rated speed rpm : 375  
rack travel mm : 7.25  
Tolerance mm : + 0.25

#### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 10.35

Tolerance mm : + 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 800  
rack travel mm : 10.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 9.90  
Tolerance mm :  $\pm$  0.05

MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 470  
rack travel mm : 10.05  
Tolerance mm :  $\pm$  0.05

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 90.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 85.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

LOW IDLE

Rated speed rpm : 375

L02

Rack travel in mm : 7.25  
Tolerance mm :  $\pm$  0.25  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 27.03.98

Test oil : ISO 4113

Combination No. : 0 400 864 103

## Injection pump

Pump designation : PES4A95D410/3RS2789

EP type number : 0 410 894 995

## Governor

Governor design. : RSV325...1250A5C871L

Governor no. : 0 420 232 626

Cust. part No. : 0423 1876 KY

## Customer-spec. information

Customer : KHD-DMI

Motor : BF4L 913

Power kW : 78.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

## Test nozzle holder assembly

: 0 681 343 009

## Opening pressure bar

: 173.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

L03

x inside diameter : 2.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.00

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.50

Tolerance mm : ± 0.05

## Del. quantity

cm<sup>3</sup>/1000 strokes : 87.0

## Tolerance

cm<sup>3</sup>/1000 strokes : ± 1.0

## Check tolerance

cm<sup>3</sup>/1000s. : ± 3.0

## Speed

## Tolerance

cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

Rated speed rpm : 325

Rack travel in mm : 9.60

Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 14.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : FREE  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 3.00

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 87.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

#### CONTROL LEVER

control lever  
position degree : 102.0  
tolerance degree : ± 4.0

RATED SPEED  
rack travel mm : 12.50  
Rated speed rpm : 1295  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1355  
Tolerance 1/min : ± 15

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1565

rack travel mm : 4.00  
Rated speed rpm : 1415  
Tolerance 1/min : ± 15

---

#### LOW IDLE

control lever  
position degree : 69.0  
tolerance degree : ± 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 9.10  
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

#### Testing:

Rated speed rpm : 325  
rack travel mm : 9.60  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 605  
Tolerance 1/min : ± 30

---

#### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 13.50  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
rack travel mm : 14.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 750  
rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1400  
rack travel mm : 14.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.10

##### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 300  
rack travel mm : 13.70  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 85.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500

L05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 68.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

#### LOW IDLE

Rated speed rpm : 325  
Rack travel in mm : 9.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 14.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 27.03.98  
Test oil : ISO 4113  
Combination No. : 0 400 864 106  
Injection pump  
Pump designation : PES4A95D410/3RS2789  
EP type number : 0 410 894 995  
Governor  
Governor design. : RSV325...1250A5C879L  
Governor no. : 0 420 232 634

Cust. part No. : 0423 2071 KY

Customer spec. information  
Customer : KHD-DMI  
Motor : BF4L 913  
Power KW : 78.0

## TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.50  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 87.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

## Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

Rated speed rpm : 325

Rack travel in mm : 9.60

Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 14.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
position degree : FREE  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 3.00

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250

Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 87.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

CONTROL LEVER

control lever  
position degree : 102.0  
tolerance degree : ± 4.0

RATED SPEED  
rack travel mm : 12.50  
Rated speed rpm : 1295  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1355  
Tolerance 1/min : ± 15

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1565

rack travel mm : 4.00  
Rated speed rpm : 1415  
Tolerance 1/min : ± 15

---

LOW IDLE

control lever  
position degree : 69.0  
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 9.10  
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 325  
rack travel mm : 9.60  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 605  
Tolerance 1/min : ± 30

---

TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 13.50  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
rack travel mm : 14.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 750  
rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1400  
rack travel mm : 14.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.10

MEASUREMENT

Rated speed rpm : 500  
  
Pressure hPa : 300  
rack travel mm : 13.70  
Tolerance mm :  $\pm$  0.10

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 85.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500

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Del. quantity  
cm<sup>3</sup>/1000 strokes : 68.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

LOW IDLE

Rated speed rpm : 325  
  
Rack travel in mm : 9.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 14.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 26.03.98  
Test oil : ISO 4113  
  
Combination No. : 0 400 864 109  
  
Injection pump  
Pump designation : PES4A95D410/3RS2789.  
EP type number : 0 410 894 995  
  
Governor  
Governor design. : RSV325...1250A5C917L  
Governor no. : 0 420 232 639

Cust. part No. : 0423 2332 KY

Customer-spec. information  
Customer : KHD-DMI  
Motor : F4L912/913  
Power KW : 59.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.35  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000s. : ± 3.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 8.50

Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5

Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : FREE  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : + 0.20

governor spring  
pre-tension  
click setting x : 4.25

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### CONTROL LEVER

control lever  
position degree : 107.0  
tolerance degree : + 4.0

RATED SPEED  
rack travel mm : 10.35  
Rated speed rpm : 1295  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1355  
Tolerance 1/min : + 15

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1530

rack travel mm : 4.00  
Rated speed rpm : 1380  
Tolerance 1/min : + 15

#### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : + 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 8.00  
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

#### Testing:

Rated speed rpm : 325  
rack travel mm : 8.50  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 510  
Tolerance 1/min : + 30

#### TORQUE CONTROL



Rated speed rpm : 1250  
rack travel mm : 11.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 17.00  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 90.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

#### LOW IDLE

Rated speed rpm : 325  
Rack travel in mm : 8.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.03.98  
Test oil : ISO 4113

Combination No. : 0 402 746 652

Injection pump  
Pump designation : PES6P120A320RS7372  
EP type number : 0 412 726 940

Governor  
Governor design. : RQV250...1500PA1222K  
Governor no. : 0 421 815 466

Cust. part No. : 3897621

## Customer-spec. information

Customer : CDC  
Motor : 68TA  
Power kW : 265.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Start of delivery blocking

\*NW after s.o.d. : 12.00  
Tolerance : ± 0.50  
Check  
tolerance \*NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1500

Rack travel in mm : 14.45  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 212.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 300

Rack travel in mm : 7.15  
Tolerance mm : ± 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 28.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1570  
guide sleeve

travel mm : 9.90  
Tolerance mm : ± 0.15

Rated speed rpm : 250  
guide sleeve

travel mm : 1.00  
Tolerance mm : ± 0.20

Rated speed rpm : 986  
guide sleeve

travel mm : 5.80  
Tolerance mm : ± 0.25

Rated speed rpm : 480  
guide sleeve

travel mm : 3.00

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Tolerance mm : ± 0.25

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1500

Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 212.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### CONTROL LEVER

control lever

position degree : 122.5

tolerance degree : ± 6.0

##### RATED SPEED

rack travel mm : 13.40

Rated speed rpm : 1565

Tolerance 1/min : ± 5

rack travel mm : 5.90

Rated speed rpm : 1695

Tolerance 1/min : ± 15

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 1780

##### LOW IDLE

control lever

position degree : 77.0

tolerance degree : ± 6.0

Control Lever difference

Grad : 45.5

tolerance degree : ± 6.0

Setting point w/out bumper spring

Rated speed rpm : 225

CRT mm min. : > 8.00

### Testing:

Rated speed rpm : 300  
rack travel mm : 7.15  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 350

### TORQUE CONTROL

Rated speed rpm : 1500  
rack travel mm : 14.45  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1200  
rack travel mm : 14.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 700  
rack travel mm : 13.20  
Tolerance mm :  $\pm$  0.20

### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1500  
Pressure hPa : 1200

Rated speed rpm : 1500  
Pressure hPa : -  
rack travel mm : 10.10  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 1500  
Pressure hPa : 800  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 410  
rack travel mm : 11.10  
Tolerance mm :  $\pm$  0.20

#### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  240

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  250

### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 202.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

rack travel mm : 13.20  
Tolerance mm :  $\pm$  0.20

Aneroid pressure  
hPa : -  
Rated speed rpm : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 108.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 21.00  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 167.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

### LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 7.15  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 28.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 31.03.98  
Test oil : ISO 4113  
Combination No. : 9 400 030 730FA  
Injection pump  
Pump designation : PES6A95D320/3RS2881.  
EP type number : 9 410 037 215

Governor  
Governor design. :  
Governor no. : 9 420 034 710

Cust. part No. : 3934842

Customer-spec. information  
Customer : CDC  
Motor : 6ETA  
Power KW : 129.6

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

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x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

\*NW after s.o.d. : 8.50  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 12.90

Tolerance mm	: + 0.05
<hr/>	
Del. quantity cm <sup>3</sup> /1000 strokes	: 108.0
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: + 1.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: + 3.0
<hr/>	
Spreed	
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: 3.5
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: 6.0
<hr/>	

Rated speed rpm	: 475
Rack travel in mm	: 5.70
Tolerance mm	: + 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	: 18.0
Tolerance cm <sup>3</sup> /1000 strokes	: + 2.0
Check tolerance cm <sup>3</sup> /1000S.	: + 4.5
Spreed	
Tolerance cm <sup>3</sup> /1000 strokes	: 3.5
Check tolerance cm <sup>3</sup> /1000S.	: 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever position degree	: - 3
<hr/>	
governor spring pre-tension click setting x	: 4.50

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1250
Aneroid pressure hPa	: 1200

Del. quantity cm <sup>3</sup> /1000 strokes	: 108.0
Tolerance cm <sup>3</sup> /1000 strokes	: + 1.0
Check tolerance cm <sup>3</sup> /1000S.	: + 3.0
Spreed	
Tolerance cm <sup>3</sup> /1000 strokes	: 3.5
Check tolerance cm <sup>3</sup> /1000S.	: 6.0

#### CONTROL LEVER

control lever position degree	: 110.0
tolerance degree	: + 4.0

#### RATED SPEED

rack travel mm	: 11.90
Rated speed rpm	: 1325
Tolerance 1/min	: + 5
Check speed 1/min	: + 10

rack travel mm	: 4.00
Rated speed rpm	: 1405
Tolerance 1/min	: + 5
Check speed 1/min	: + 10

rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 1300

rack travel mm	: 4.00
Rated speed rpm	: 1410
Tolerance 1/min	: + 15
Check speed 1/min	: + 20

#### LOW IDLE

control lever position degree	: 84.0
tolerance degree	: + 4.0

#### Control lever difference

Grad	: 26.0
tolerance degree	: + 6.0

#### Setting point w/out bumper spring

Rated speed rpm	: 475
-----------------	-------

rack travel mm : 5.20  
Tolerance mm : + 0.10  
  
Rated speed rpm : 100  
  
CRT mm min. : > 19.00

#### Testing:

Rated speed rpm : 475  
rack travel mm : 5.70  
Tolerance mm : + 0.10

#### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 12.90  
Tolerance mm : + 0.05

Rated speed rpm : 750  
rack travel mm : 13.20  
Tolerance mm : + 0.20

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 11.30  
Tolerance mm : + 0.10

##### MEASUREMENT

Rated speed rpm : 500  
  
Pressure hPa : 740  
rack travel mm : 12.55  
Tolerance mm : + 0.20

Pressure hPa : 535  
rack travel mm : 11.75  
Tolerance mm : + 0.20

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 115.5

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Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

#### Aneroid pressure

hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 92.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : + 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 15.0

#### LOW IDLE

Rated speed rpm : 475  
  
Rack travel in mm : 5.70  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 27.03.98  
Test oil : ISO 4113

Combination No. : 9 400 030 747

Injection pump  
Pump designation : PES4A95D320/3RS2880.  
EP type number : 9 410 037 214

Governor  
Governor design. : RSV475...1100AOC863R  
Governor no. : 9 420 034 721

Cust. part No. : 3930152

## Customer spec. information

Customer : CDC  
Motor : 4BT3.9  
Power KW : 71.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

\*NW after s.o.d. : 7.50  
Tolerance : ± 0.50  
Check  
tolerance \*NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.75  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 100.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

Rated speed rpm : 475

Rack travel in mm : 5.60

Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (E) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 3.75

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 100.0

L20

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

##### CONTROL LEVER

control lever  
position degree : 111.5  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 10.75

Rated speed rpm : 1170

Tolerance 1/min : ± 5

Check  
speed 1/min : ± 10

rack travel mm : 6.00

Rated speed rpm : 1240

Tolerance 1/min : ± 5

Check  
speed 1/min : ± 10

rack travel mm : 0.85

Tolerance mm : ± 0.55

Rated speed rpm : 1375

rack travel mm : 6.00

Rated speed rpm : 1240

Tolerance 1/min : ± 15

Check  
speed 1/min : ± 20

##### LOW IDLE

control lever  
position degree : 90.0  
tolerance degree : ± 4.0

##### Control lever difference

Grad : 21.5

tolerance degree : ± 6.0

##### Setting point w/out bumper spring

Rated speed rpm : 475

rack travel mm : 5.10

Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

#### Testing:

Rated speed rpm : 475  
rack travel mm : 5.60  
Tolerance mm :  $\pm$  0.10

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 12.75  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 750  
Pressure hPa : 1000

Rated speed rpm : 750  
Pressure hPa : -  
rack travel mm : 11.10  
Tolerance mm :  $\pm$  0.10

#### MEASUREMENT

Rated speed rpm : 750  
Pressure hPa : 600  
rack travel mm : 12.70  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 410  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.20

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### Aneroid pressure

hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 86.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

---

#### LOW IDLE

Rated speed rpm : 475  
Rack travel in mm : 5.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.03.98  
Test oil : ISO 4113

Combination No. : 0 401 876 769

Injection pump  
Pump designation : PE6P120A320RS3206-2.  
EP type number : 0 411 826 784

Governor  
Governor design. : RSV250...1300POA374  
: -8  
Governor no. : 0 421 833 320

Cust. part No. : 864068 P05 v. 04/95

Customer spec. information  
Customer : PENTA  
Motor : TAM071 B  
Power KW : 280.0

## TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Vibration  
damper  
(RoBo diaphragm) : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Tolerance L/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 7.20  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 10.10  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 216.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 250

Rack travel in mm : 5.20  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 6.00

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure

hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 216.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### CONTROL LEVER

control lever  
position degree : 64.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 114.0  
tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : 9.10

Rated speed rpm : 1340  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00

Rated speed rpm : 1430  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.85

Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1530

rack travel mm : 4.00

Rated speed rpm : 1440  
Tolerance 1/min :  $\pm$  15

#### LOW IDLE

control lever  
position degree : 80.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 30.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 250  
rack travel mm : 4.70  
Tolerance mm :  $\pm$  0.10

Testing:

Rated speed rpm : 250  
rack travel mm : 5.20  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 440  
Tolerance 1/min :  $\pm$  30

TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 10.10  
Tolerance mm :  $\pm$  0.05

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 10.10  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 7.20  
Tolerance mm :  $\pm$  0.10

MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 780  
rack travel mm : 2.60  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 350  
rack travel mm : 0.25  
Tolerance mm :  $\pm$  0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 136.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

LOW IDLE

Rated speed rpm : 250  
Rack travel in mm : 5.20  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 7.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 27.03.98  
Test oil : ISO 4113

Combination No. : 0 402 646 675

Injection pump  
Pump designation : PE6P120A32ORS7299  
EP type number : 0 412 626 885

Governor  
Governor design. : RQV275...1000PA1337K  
Governor no. : 0 421 815 554

Cust. part No. : 1322504

## Customer spec. information

Customer : DAF  
Motor : WS 268 M  
Power KW : 268.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 140  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 13.55  
Tolerance mm : ± 0.05

Del. quantity cm <sup>3</sup> /1000 strokes	: 250.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.0
Spreed	
Tolerance cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance cm <sup>3</sup> /1000S.	: 9.0

Rated speed rpm	: 275
Rack travel in mm	: 5.10
Tolerance mm	: ± 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	: 17.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 3.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 6.0
Spreed	
Tolerance cm <sup>3</sup> /1000 strokes	: 3.0
Check tolerance cm <sup>3</sup> /1000S.	: 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1047
guide sleeve travel mm	: 7.35
Tolerance mm	: ± 0.15
Rated speed rpm	: 275
guide sleeve travel mm	: 2.04
Tolerance mm	: ± 0.20
Rated speed rpm	: 820
guide sleeve travel mm	: 5.14
Tolerance mm	: ± 0.25
Rated speed rpm	: 480

guide sleeve travel mm	: 3.34
Tolerance mm	: ± 0.25
Rated speed rpm	: 1282
guide sleeve travel mm	: 12.00
Tolerance mm	: ± 0.25
Rated speed rpm	: 1370
guide sleeve travel mm	: 13.50
Tolerance mm	: ± 0.50

##### GUIDE SLEEVE POSITION

control lever position degree	: - 1
Rated speed rpm	: 1248
Rack travel in mm	: 12.80
Tolerance mm	: ± 2.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 980
Aneroid pressure hPa	: -
Del. quantity cm <sup>3</sup> /1000 strokes	: 250.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.0
Spreed	
Tolerance cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance cm <sup>3</sup> /1000S.	: 9.0

##### CONTROL LEVER

control lever position degree	: 110.0
tolerance degree	: ± 4.0
RATED SPEED	
rack travel mm	: 12.55
Rated speed rpm	: 1042
Tolerance 1/min	: ± 5
rack travel mm	: 4.00
Rated speed rpm	: 1150
Tolerance 1/min	: ± 15



rack travel mm : 0.70  
Tolerance mm : + 0.70  
Rated speed rpm : 1250

---

#### LOW IDLE

control lever  
position degree : 75.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 175  
CRT mm min. : > 7.50

#### Testing:

Rated speed rpm : 275  
rack travel mm : 5.10  
Tolerance mm : + 0.10

Rated speed rpm : 350

---

#### TORQUE CONTROL

Rated speed rpm : 980  
rack travel mm : 13.55  
Tolerance mm : + 0.05

Rated speed rpm : 750  
rack travel mm : 13.05  
Tolerance mm : + 0.10

Rated speed rpm : 600  
rack travel mm : 12.35  
Tolerance mm : + 0.10

Rated speed rpm : 500  
rack travel mm : 11.90  
Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 980  
Pressure hPa : 1500  
rack travel mm : 13.55  
Tolerance mm : + 0.05

Rated speed rpm : 980  
Pressure hPa : -

L27

rack travel mm : 8.20  
Tolerance mm : + 0.10

#### MEASUREMENT

Rated speed rpm : 980

Pressure hPa : 820  
rack travel mm : 12.25  
Tolerance mm : + 0.05

Pressure hPa : 400  
rack travel mm : 9.40  
Tolerance mm : + 0.15

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 263.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

rack travel mm : 12.35  
Tolerance mm : + 0.10

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 144.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

#### LOW IDLE

Rated speed rpm : 275  
Rack travel in mm : 5.10

Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 27.03.98  
Test oil : ISO 4113

Combination No. : 0 402 646 682

Injection pump  
Pump designation : PE6P120A320RS7438  
EP type number : 0 412 626 965

Governor  
Governor design. : RQV275...1150PA1386K  
Governor no. : 0 421 815 563

Cust. part No. : 1349449

Customer-spec. information  
Customer : DAF  
Motor : PF 235 M (flach)  
Power KW : 235.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 150  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

MO1

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 13.50  
Tolerance mm : ± 0.05

Del. quantity cm <sup>3</sup> /1000 strokes	: 259.0
Tolerance cm <sup>3</sup> /1000 strokes	: + 1.0
Check tolerance cm <sup>3</sup> /1000s.	: + 4.0
Speed	
Tolerance cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance cm <sup>3</sup> /1000s.	: 9.0

Rated speed rpm	: 275
Rack travel in mm	: 5.00
Tolerance mm	: + 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	: 16.0
Tolerance cm <sup>3</sup> /1000 strokes	: + 3.0
Check tolerance cm <sup>3</sup> /1000s.	: + 6.0
Speed	
Tolerance cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance cm <sup>3</sup> /1000s.	: 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1174
guide sleeve travel mm	: 7.43
Tolerance mm	: + 0.15
Rated speed rpm	: 275
guide sleeve travel mm	: 1.71
Tolerance mm	: + 0.20
Rated speed rpm	: 940
guide sleeve travel mm	: 5.44
Tolerance mm	: + 0.25
Rated speed rpm	: 520

guide sleeve travel mm	: 3.40
Tolerance mm	: + 0.25

Rated speed rpm	: 1427
guide sleeve travel mm	: 12.00
Tolerance mm	: + 0.25

Rated speed rpm	: 1520
guide sleeve travel mm	: 13.50
Tolerance mm	: + 0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm	: 1401
Rack travel in mm	: 12.20
Tolerance mm	: + 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 850
Aneroid pressure hPa	: 1500
Del. quantity cm <sup>3</sup> /1000 strokes	: 259.0
Tolerance cm <sup>3</sup> /1000 strokes	: + 1.0
Check tolerance cm <sup>3</sup> /1000s.	: + 4.0
Speed	
Tolerance cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance cm <sup>3</sup> /1000s.	: 9.0

##### CONTROL LEVER

control lever position degree	: 110.0
tolerance degree	: + 4.0

RATED SPEED	
rack travel mm	: 12.20
Rated speed rpm	: 1185
Tolerance 1/min	: + 5
Check speed 1/min	: + 10
rack travel mm	: 4.00
Rated speed rpm	: 1295
Tolerance 1/min	: + 15
Check speed 1/min	: + 20

rack travel mm : 0.70  
Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1450

---

#### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 175

CRT mm min. :  $>$  7.60

#### Testing:

Rated speed rpm : 275  
rack travel mm : 5.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 395

---

#### TORQUE CONTROL

Rated speed rpm : 850  
rack travel mm : 13.50  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1130  
rack travel mm : 13.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000  
rack travel mm : 13.35  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 800  
rack travel mm : 13.45  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 650  
rack travel mm : 12.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 11.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1150  
rack travel mm : 13.20  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 875  
Pressure hPa : 1500  
rack travel mm : 13.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 875  
Pressure hPa : -  
rack travel mm : 9.15  
Tolerance mm :  $\pm$  0.10

#### MEASUREMENT

Rated speed rpm : 875

Pressure hPa : 450  
rack travel mm : 12.10  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 150  
rack travel mm : 9.80  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 1130  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 232.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

rack travel mm : 13.35  
Tolerance mm :  $\pm$  0.10

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 170.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

LOW IDLE

Rated speed rpm : 275  
Rack travel in mm : 5.00  
Tolerance mm : +- 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

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End of test specification sheet